WESTCOTT RULER

MADE IN USA

C-O
(C-4)

QL
687
B61
1879
v. 1
Birds

SMITHSONIAN
JAN 03 1992
LIBRARIES

PROSPECTUS.

BIOLOGIA CENTRALI-AMERICANA.

Edited by F. D. GODMAN and OSBERT SALVIN.

UNDER this title it is proposed to publish a series of Quarto Volumes upon the Fauna and Flora of Mexico and Central America—*i. e.* the whole of Mexico from the valleys of the Rio Grande and Gila on the north, the five Central-American States of Guatemala, Honduras, San Salvador, Nicaragua, and Costa Rica, British Honduras, and the Colombian State of Panama as far south as the Isthmus of Darien.

During the past twenty-two years the Editors have been collecting materials for such a Work as they now propose. They have themselves visited parts of the country, and spent several years there; and during the whole of the above period they have received collections from correspondents, and from naturalists specially employed in visiting many of the previously unexplored districts. The materials thus obtained have been partly retained by the Editors in their own Collection, and partly so distributed as to be most readily available for the present work. In addition to these materials, the Editors propose that all specimens obtained by other travellers should be examined, wherever they may be accessible, so as to make the work as complete a record as possible of what is known of the Animal and Vegetable life of the country under investigation.

The work will be issued in Zoological and Botanical Parts. Those relating to Zoology will contain portions of several subjects. When the work is closed each subject will be complete in itself; and the whole will form a series of volumes of various thicknesses, according to the extent of each subject. The Botanical parts will contain no other subject.

Each Zoological Part will contain twelve sheets (or 96 pages) of letterpress, and an average of six plates, most of which will be lithographs coloured by hand.

Each Botanical Part will also contain twelve sheets of letterpress and an average of six plates, a few of which will be coloured.

As it is proposed to include all the materials that may come to hand during the progress of the work, it is not possible to give an exact estimate of its extent; but it is believed that it will not much exceed 60 Parts, equivalent to about 12 Volumes of 500 pages each, of Zoology, and 20 Parts of Botany.

The work will be published by Subscription; and Subscribers will be at liberty to take the whole work or the Zoology or Botany separately. The different subjects of Zoology will not be sold separately; and Subscribers, on commencing their Subscription, must give an undertaking to continue it till the work is finished.

The Price of each Zoological Part will be 21s., and of each Botanical Part, 12s. 6d.

The Editors feel that it will be hardly possible to issue Parts at stated intervals; but they will endeavour to complete a Part of each subject every two months, or six Zoological and six Botanical Parts in the course of a year.

THE Editors have been fortunate in obtaining the cooperation of many Zoologists in the Zoological part of their work. The different subjects, so far as at present arranged, have been undertaken as follows:—

MAMMALIA. By EDWARD R. ALSTON, F.L.S.

AVES. By OSBERT SALVIN and F. DUCANE GODMAN.

REPTILIA.
AMPHIBIA.
PISCES.
} By Dr. A. GÜNTHER, F.R.S., Keeper of the Zoological Department, British Museum.

MOLLUSCA (Land and Freshwater). By Dr. E. VON MARTENS.

CRUSTACEA (Freshwater Malacostraca). By Prof. T. H. HUXLEY, LL.D., Sec. R.S.

ARACHNIDA. By Rev. O. PICKARD CAMBRIDGE.

COLEOPTERA. By H. W. BATES, F.L.S., Rev. H. S. GORHAM, MARTIN JACOBY, E. W. JANSON, Dr. D. SHARP, and C. O. WATERHOUSE.

HYMENOPTERA *.

LEPIDOPTERA.

RHOPALOCERA. By F. DUCANE GODMAN and OSBERT SALVIN.

HETEROCERA. By HERBERT DRUCE, F.L.S.

DIPTERA *.

NEUROPTERA. By R. M'LACHLAN, F.R.S.

ORTHOPTERA (part). By J. WOOD-MASON.

RHYNCHOTA. By W. L. DISTANT.

* No arrangement has yet been male with respect to these subjects.

The BOTANICAL portion is entirely in the hands of Mr. W. B. HEMSLEY, A.L.S.

The Editors will give, at the conclusion of the Work, an Introductory Volume, wherein the physical features of the country will be described and illustrated with maps.

miles south of the first, is working in eocene deposits, the dawn period of mammalian life. The strata are extraordinarily rich in fossil remains. We have discovered the skull of a giant rhinoceros—like the beast known as the titanothere, which, although it has been buried for three million years, is almost as perfect as though the animal had died a week ago. The titanotheres were previously only known in America. Finding this particular stage in their development shows that they crossed from America by way of a former land bridge to Asia.

We have found, also, remains of a giant dog-like carnivore, as well as many teeth and jaws of an ancestral tapir-like animal. We could spend easily a year's work in these great deposits, but will give them only enough time to get a few of the choicest things.

THE GODMAN AND SALVIN MEMORIAL

A TABLET in memory of Frederick Du Cane Godman, F.R.S., and Osbert Salvin, F.R.S., has been unveiled by Lord Rothschild, chairman of the memorial committee, at the Natural History Museum, South Kensington, and accepted on behalf of the trustees of the British Museum by the Archbishop of Canterbury.

The London *Times* notes that these two distinguished men of science were intimately associated in research and the results of their labors form an important part of the treasures of the Natural History Museum. The friendship between them dated from the fifties of the last century, when they were both undergraduates at Cambridge, and lasted until the death in 1898 of Salvin, who was survived twenty-one years by Godman, the latter dying in 1919, in his eighty-sixth year. In 1876 the two friends conceived the idea of the monumental work entitled *Biologia Centrali-Americana,* which has been described as without doubt the greatest work of the kind ever planned and carried out by private individuals.

As completed, the Biologia consists of sixty-three volumes, of which one forms the introduction, fifty-one are devoted to zoology, five to botany, and six to archeology. The work was edited by Salvin and Godman, and after Salvin's death by Godman alone. The three volumes on the birds and three others on the diurnal lepidoptera were prepared by Godman and Salvin themselves, while the others were written by various specialists. The volumes contain 1,677 plates, of which more than nine hundred are colored, and the total number of species is 50,263, of which 19,263 are described for the first time.

In 1885 Godman and Salvin resolved to present their wonderful neo-tropical collections to the British Museum. Of birds' skins alone over 520,000 were contained in this magnificent donation, which included not only the collections made by Salvin and Godman themselves, chiefly in Guatemala, but many others from various parts of South America, the Mexican collections obtained by Godman himself and his collectors, made in that country in 1887, and the great Henshaw collection of the birds of the United States containing over 13,000 specimens, which was secured by Godman in order to provide a thoroughly authentic series of North American birds for comparison with those of Mexico and Central America.

The commemorative tablet, with portraits in relief of Salvin and Godman, is placed on the wall of the central hall of the museum, near and behind the statue of Darwin.

Lord Rothschild, in presenting the tablet on behalf of the subscribers, explained that the committee had decided that any subscriptions left over after the memorial had been paid for should be devoted to a collecting fellowship. Shortly after that decision Dame Alice Godman and the Misses Godman devoted a further sum of £5,000 to the Godman Exploration Fund, to which others had given further donations.

The Archbishop of Canterbury, in accepting the tablet, expressed the cordial welcome given by the trustees to gifts of that kind. Mr. Godman was one with whom it had been his privilege to sit for years as one of the trustees on the committee of management of museum affairs. Those who shared that privilege knew well how wide was the range of his knowledge and how applicable it was to almost anything that might arise. The Archbishop commended the setting up of memorials of great representatives of science and great benefactors to the museum. In Mr. Godman they had not only one of the donors to whom they owed so much, but also a valued trustee. He wanted to emphasize the importance which seemed to him to attach to taking care that such names, such acts, such memories and such lives should not be forgotten by those who looked at the specimens and collections the museum contained. He believed that in thus recording the services rendered by men such as Mr. Godman and Mr. Salvin they were serving the best interests of the museum.

SIR WILLIAM THISELTON-DYER

THE following letter, printed in *Nature,* has been addressed by British botanists to Sir William Thiselton-Dyer, who celebrated his eightieth birthday on July 28:

> The occasion of your eightieth birthday affords us the opportunity of which we gladly avail ourselves, not only of offering you our congratulations upon having attained so venerable an age, but also of assuring you of our continued regard and esteem. In doing so we who sign this letter do but acknowledge our indebtedness to you for the inspiration and guidance which we, both as teachers and researchers, have derived directly or indirectly from your own early work as a professor of botany. We regard that work, and more especially the courses of practical instruction conducted by you at South Kensington

in the years 1875 and 1876, as having inaugurated the renaissance of the study of the structure and functions of plants which had been so brilliantly carried on by British botanists in earlier times. It must, we feel sure, afford you great and justifiable satisfaction to contemplate the marvelous development of such studies in this country during the years that have passed since you quickened them into new life.

The professorial career on which you had embarked so brilliantly was unfortunately, as it may have seemed at the time, brought to a close by your appointment to the assistant directorship of Kew in 1875 and your subsequent appointment as director ten years later. The work that you were enabled to carry out at Kew has been of such national importance that, however much we may regret the loss of the stimulating influence you would undoubtedly have exerted as a professor, we all realize the great and lasting services you have rendered to botany, not only from the purely scientific point of view, but also in relation to the development and encouragement of botanical enterprise throughout the British Empire.

Another notable result of the interest you inspired was the successful launching of the *Annals of Botany*, which has come to be one of the leading botanical periodicals of the world. We do not forget that it was your enthusiasm that turned the scale when the question of "to be or not to be" hung in the balance. The *Annals* is a lasting monument to your courage and prescience.

It would need a lengthy document were we to attempt to set out in detail the value of your many efforts for the promotion of our science, but in conclusion we feel we must refer to the noble work you did in saving the old Chelsea Physic Garden from destruction. Thanks to you, London has now a botanic garden where students and teachers can study the structure and functions of plants and pursue those studies which you did so much to promote.

With our very kind regards and good wishes,

Believe us to be, dear Sir William,

Yours very truly,

D. H. SCOTT	F. KEEBLE
S. H. VINES	A. B. RENDLE
F. O. BOWER	A. SHIPLEY
BALFOUR	H. WAGER
H. T. BROWN	F. F. BLACKMAN
D. PRAIN	V. H. BLACKMAN
F. DARWIN	F. W. OLIVER
H. H. DIXON	A. G. TANSLEY
A. C. SEWARD	F. E. WEISS
J. B. FARMER	A. W. HILL

and all the leading botanists in Great Britain and Ireland.

SCIENTIFIC NOTES AND NEWS

THE University of Strasbourg has conferred the title of doctor *honoris causa* on Drs. Simon Flexner and Jacques Loeb, of the Rockefeller Institute for Medical Research; William H. Welch, of the Johns Hopkins University; William Maddock Bayliss and Ernest Henry Starling, of the University College of London; John Newport Langley, of the University of Cambridge; Edward L. Ehlers, of the University of Copenhagen; Jules J. B. Bordet, of the University of Brussels; Edoardo Perroncito, of the University of Turin, and Santiago Ramon y Cajal, of the University of Madrid.

AT the general public meeting of the American Chemical Society on Tuesday, September 11, addresses of welcome will be delivered by C. H. Hall, chairman of the Milwaukee Section; Hon. Daniel Hoan, mayor of Milwaukee; Hon. Emanuel Philipp, president of the Milwaukee Association of Commerce, and President Fox, of Milwaukee University. The general addresses at this meeting will be delivered by Dr. Charles F. Burgess, who will speak on "Marketing chemical discoveries," and Dean R. T. Kendall, of the Medical School, Northwestern University, who will speak on "Bacteria and the chemist."

THE following awards have been made by the Royal College of Physicians, London: The Baly gold medal, given every alternate year for distinction in the science of physiology, to Mr. J. Barcroft; the Bisset-Hawkins medal, bestowed triennially for work in advancing sanitary science or in promoting public health, to Dr. T. M. Legge.

AT the International Surgical Congress recently held in London, Dr. Davide Giordano, Venice, Italy, was elected president to succeed Sir William Macewen. The predecessors in the presidency of these congresses were: Kocher, of Berne; Czerny, of Heidelberg; Championnière, of Paris; Depage, of Brussels, and Keen, of Philadelphia. The next congress will be held in Rome.

WE learn from the *Journal* of the American Medical Association that more than twenty physicians of Ontario were candidates at the recent elections to the Canadian Parliament. The following physicians were the successful candidates: Joseph D. Monteith, Stratford; the Hon. David Jamieson, Durham; Arthur G. Wallis, Algoma; Leeming Carr, East Hamilton; George V. Harcourt, Parry Sound; Forbes E. Godfrey, West York, and John P. Vrooman, Lennox.

THE National Alliance for the Increase of the French Population has awarded the first prize of 50,000 fr. to M. Paul Haury for the best popular pamphlet on the decreasing birth rate in France and the tragic consequences to the nation.

SIR RICHARD GLAZEBROOK has been appointed chairman in charge of exhibits in pure science at the British Empire Exhibition to be held next year in London.

BIOLOGIA CENTRALI-AMERICANA.

AVES.

VOL. I.

(*TEXT.*)

BY

OSBERT SALVIN, F.R.S., &c.,

AND

FREDERICK DUCANE GODMAN, D.C.L., F.R.S., &c.

1879–1904.

SMITHSONIAN
JUN 3 1957
LIBRARY

598.29728
.B6
13 vols

CONTENTS OF VOL. I.

Page

INTRODUCTION v

TABLE SHOWING THE GEOGRAPHICAL DISTRIBUTION OF THE FAMILIES OF BIRDS REPRESENTED IN MEXICO AND CENTRAL AMERICA xi

TABLE SHOWING THE GEOGRAPHICAL DISTRIBUTION OF THE SPECIES OF BIRDS OF MEXICO AND CENTRAL AMERICA xiii

LIST OF PLATES xxxix

ERRATA ET CORRIGENDA xliii

Page

Subclass **AVES CARINATÆ** 1
Order PASSERES 1
Suborder OSCINES 1
Section I. OSCINES DENTIROSTRES . 1
Fam. Turdidæ 1
Subfam. Turdinæ 1
„ Miminæ 26
„ Myiadectinæ . . . 39
Fam. Cinclidæ 43
Fam. Sylviidæ 45
Subfam. Saxicolinæ 45
„ Regulinæ 48
„ Polioptilinæ . . . 50
Fam. Paridæ 55
Fam. Sittidæ 59
Fam. Certhiidæ 61
Fam. Troglodytidæ 62
Fam. Motacillidæ 107
Fam. Mniotiltidæ 109
Subfam. Mniotiltinæ . . . 109
„ Icteriinæ 157
„ Setophaginæ . . . 162
Fam. Vireonidæ 185

Page

Fam. Laniidæ 213
Fam. Ampelidæ 215
Section II. OSCINES LATIROSTRES . 222
Fam. Hirundinidæ 222
Section III. OSCINES TENUIROSTRES . 241
Fam. Cœrebidæ 241
Section IV. OSCINES CONIROSTRES . 252
Fam. Tanagridæ 252
Subfam. Euphoniinæ 252
„ Tanagrinæ 266
Fam. Fringillidæ 334
Section V. OSCINES CULTRIROSTRES . 435
Fam. Icteridæ 435
Subfam. Cassicinæ 435
„ Agelæinæ 447
„ Sturnellinæ 456
„ Icterinæ 459
„ Quiscalinæ 479
Fam. Corvidæ 486
Subfam. Corvinæ 486
„ Garrulinæ 489
Fam. Alaudidæ 510

INTRODUCTION.

THE enumeration of the Aves of Mexico and Central America was commenced in September 1879 by the late Osbert Salvin and myself, and is now completed in four Volumes, three of text and one of plates. Salvin's long-continued ill-health, and sudden death in 1898, greatly retarded the conclusion of the Third Volume, which was subsequently finished by me with the assistance of Dr. R. Bowdler Sharpe and Mr. Ogilvie-Grant. On this account, too, it has been decided to abandon all idea of a Supplement, and to close the volumes as they stand. The critical examination of the large amount of additional material that has come to hand during the progress of publication, and the analysis of the extensive literature on the subject issued in recent years, could only have been dealt with satisfactorily with the assistance of Salvin himself, and I am reluctantly compelled to leave this portion of the subject untouched. It may be noted, however, that the additions are mainly amongst the Passeres, which were completed in 1892.

The physical features of the whole region are described in the Preface to the "Lepidoptera Rhopalocera," concluded in 1901, and in the Appendix to the Botany, published in 1887, and need not be again repeated here. This Introduction will therefore be chiefly devoted to some remarks on geographical distribution, to the journeys made by us in Central America, and the sources from which our material has been obtained, concluding with a Table showing the distribution of the Families and Species as arranged in this work. To make this latter as complete as possible, the additional countries whence specimens were subsequently received are, however, specially indicated.

In dealing with the Birds we have extended the limits of our region, so as to include the Revillagigedo Islands on the Pacific side (on account of the numerous sea-birds inhabiting them); the Island of Old Providence on the Atlantic side (this small island

having a peculiar humming-bird, *Lampornis hendersoni*); and some places on the Isthmus of Darien a little to the south of the political limit of the State of Panama. Baja (or Lower) California, though belonging politically to Mexico, is excluded.

The 1413 species of birds included in this work embrace representatives of seventy-eight families and 539 genera. Out of the twenty Orders given in the 'Nomenclator Avium Neotropicalium' (1873), all but three (the Opisthocomi, the Struthiones, and the Impennes) are represented. The other Neotropical families wholly absent from Central America are the Phytotomidæ, amongst the Passeres; the Steatornithidæ, of the Macrochires; the Todidæ, of the Coccyges; the Palamedeidæ, of the Anseres; the Cariamidæ and Psophiidæ, of the Geranomorphæ; and the Chionididæ and Thinocoridæ, of the Limicolæ. To the Passeres belong rather more than half (741) of the total number of Central-American species, this proportion being much greater than that given in the 'Nomenclator' for the whole of the Neotropical Region, with 3565 species, where the numbers are 1976 and 1589 respectively.

The geographical distribution of the families, exclusive of the Sea-birds and Waders, may be stated as follows: (1) *Exclusively Neotropical*—Cœrebidæ, Oxyrhamphidæ, Pipridæ, Dendrocolaptidæ, Formicariidæ, Pteroptochidæ, Momotidæ, Galbulidæ, Bucconidæ, Rhamphastidæ, Cancromidæ, Eurypygidæ, and Tinamidæ (the subfamily Tinamotidinæ excepted); (2) *Neotropical*, but represented by one or more species in North America—Tanagridæ (*Pyranga*), Icteridæ, Tyrannidæ, Cotingidæ (*Hadrostomus*), Trochilidæ, Sarcorhamphidæ, Cracidæ, Aramidæ, and Parridæ; (3) *Tropical countries generally*—Trogonidæ and Psittacidæ (each with a single species extending to a little north of our boundary), Capitonidæ, Plotidæ, and Heliornithidæ; (4) *North and Central America*—Meleagridæ (not reaching south of Guatemala); (5) *Nearctic*, migrating south during the northern winter—Mniotiltidæ and Vireonidæ; (6) *Holarctic*, migrating south during the northern winter—Turdidæ, Motacillidæ, Laniidæ, Hirundinidæ, Fringillidæ, Cypselidæ, Caprimulgidæ, Picidæ; and (7) *Cosmopolitan*—Corvidæ, Alaudidæ, Cuculidæ, Strigidæ, Asionidæ, Pandionidæ, Falconidæ, Ardeidæ, Ciconiidæ, Plataleidæ, Ibididæ, Phœnicopteridæ (except Australia), Anatidæ, Columbidæ, Peristeridæ, Phasianidæ, Rallidæ, Gruidæ, Œdicnemidæ (not reaching north of Mexico), and Charadriidæ.

Amongst the genera, thirty-eight are endemic:—Trochilidæ (14), Fringillidæ (4), Momotidæ, Corvidæ, Ampelidæ, and Turdidæ (2 each), and Troglodytidæ, Mniotiltidæ,

Vireonidæ, Tanagridæ, Icteridæ, Tyrannidæ, Cotingidæ, Formicariidæ, Pteroptochidæ, Caprimulgidæ, Trogonidæ, and Cracidæ (1 each).

Out of the total number of 1413 species enumerated, 636 are endemic. Of these latter, 271 are peculiar to (*a*) Mexico, Honduras, or Guatemala, 3 to (*b*) Nicaragua, and 162 to (*c*) Costa Rica or Panama, the remainder (189) being more widely distributed within the region or common to two of these divisions.

The Trochilidæ include 118 species, with 84 endemic; the Fringillidæ 104, with 52 endemic; the Tanagridæ 86, with 46 endemic; the Formicariidæ 52, with 28 endemic; the Dendrocolaptidæ 47, with 26 endemic; the Troglodytidæ 46, with 30 endemic; the Turdidæ 41, with 24 endemic; the Psittacidæ 34, with 24 endemic; the Phasianidæ 32, with 25 endemic; the Peristeridæ 30, with 19 endemic; the Cotingidæ 26, with 12 endemic; the Trogonidæ 16, with 11 endemic; the Cracidæ 14, with 12 endemic; the Tinamidæ 11, with 8 endemic; and the Rhamphastidæ 10, with 7 endemic.

It will thus be seen that these fifteen families are all rich in peculiar forms, and that the families themselves are almost all tropical. On the other hand, a large number of species belonging to the more widely distributed genera find their winter home in Mexico and Central America, or even further south, returning to breed in the Nearctic Region, some Humming-birds (such as *Trochilus colubris* and *Selasphorus rufus*) and others wandering far north at this season. It would be very interesting to show the lines of migration of many of the species, but we have not sufficient data for this purpose. Some of them, no doubt, travel southward from the United States to the mainland of South America by way of the Caribbean or the West Indian Islands, perhaps just touching the eastern part of our region *en route*. Others probably find their way down the central tablelands, and a few western species, again, pass down the lowlands of the Pacific coast.

The Tres Marias, Coiba, and Pearl Islands in the Pacific, and the islands of Cozumel, Mugeres, Holbox, Ruatan, and Old Providence in the Atlantic, possess various slightly modified forms; and the Revillagigedo Islands are the home of numerous interesting sea-birds not found on the mainland.

To summarize the results, the Avifauna of Central America may be described as essentially Neotropical, with certain peculiar forms (such as *Oreophasis derbianus*,

Meleagris ocellata, *Pharomacrus mocinno*, and *Zeledonia coronata*) restricted to it. Central America, as here treated, is in fact merely a subregion of the Neotropical Region, with a large admixture of Nearctic forms, especially during the northern winter.

India, including Ceylon and Burma, the birds of which have been most exhaustively studied, and which is perhaps the only other well-defined tropical region with which the Central-American Avifauna can be compared, has 1626 species (Blanford, 1898) as against our 1413. It must be remembered, however, that the area of India is nearly twice as large as that of our region, so that the balance of numbers is very considerably in favour of Central America. North America has 768 species (A.O.U. Check-list, 1895).

The material for this work was mainly obtained by Salvin and myself during our several visits to Central America. Salvin visited Guatemala three times—in 1857–1858; 1861–1863, in company with myself, for part of the time; and, finally, in 1867. On his way to and from Guatemala he also collected (with me) in British Honduras, and on one of these trips he also investigated *en route* various places on the Isthmus of Panama. Salvin first reached Belize in December 1857. After a few days' stay he proceeded down the coast to Yzabal, over the inland lake called the Golfo Dulce, and thence to the city of Guatemala, collecting by the way. Dueñas, about thirty miles south of the capital, situated between the Volcanoes of Agua and Fuego, was his headquarters during his six-months' residence in the country; but he also made two excursions towards the Pacific coast, and one to the lake of Atitlan in the Los Altos region. Leaving the country in June 1858, he returned home by way of Panama. On the second journey I accompanied him. We arrived at Belize in September 1861, having spent about three weeks in Jamaica on the way. From Belize we proceeded *viâ* the Golfo Dulce to Yzabal, remained there a few days, and then passed on over the Mico Mountains to the ruins of Quirigua. From Quirigua we travelled *viâ* Zacapa and Guatemala city to Dueñas. Here we stayed for about three months, collecting principally in the forests on the slopes of the Volcan de Fuego. We then went to San Gerónimo, in Baja Vera Paz, and spent about two months there, making various excursions to the mountains of Santa Cruz, Chilasco, &c. From San Gerónimo we continued our journey to Coban, whence trips were made to Choctum and Cubilguitz in the low ground of Alta Vera Paz. Salvin left me at Coban, and went to Peten, by way of Lanquin, Cahabon, and Chisec, and on by the River Belize to Belize, subsequently

making a most interesting visit (May 1862) to the "Cays," where he found many sea-birds nesting. In the meantime I went to the highlands of Quiché, Guatemala city, Alotepeque, and Copan, and returned to Yzabal by way of Chiquimula, meeting Salvin again on my way home. After I left he passed through the Altos, from Vera Paz, staying at Totonicapam, Quezaltenango, and other places, and made two expeditions to the Costa Grande: one to Retalhuleu, and the other to the lagoons of the coast and the series of small lakes at Huamuchal, close to the frontier of Soconusco. Salvin, on his third journey, arrived at San José in May 1873. He made his headquarters again at Dueñas, from which place he once more visited the forests of the Volcan de Fuego, the Volcan de Atitlan, and the Altos, travelling thence to San Gerónimo, Guatemala city, and San José. On his way home he spent a week at Obispo, on the line of the Panama Railroad, returning to England, *viâ* New York, in June 1874. On one of the earlier journeys to Guatemala, Salvin had been fortunate enough to be able to train and secure the services of a native, Enrique Arcé, who subsequently went to Costa Rica, Chiriqui, and Veraguas on our behalf.

In 1887–1888 I made an expedition to Mexico, visiting the Volcanoes of Popocatepetl and Ixtaccihuatl, Jalapa, Misantla, Vera Cruz, Puebla, Cuernavaca, Morelia, Patzcuaro, Amecameca, Yucatan (Merida, Izamal, Ticul, Peto), &c. During part of the time I had with me, as collectors, Mr. W. B. Richardson, Mr. and Mrs. Herbert H. Smith, and an Indian, M. Trujillo, all of whom did good work and continued to obtain skins for us for some time after I left. Richardson subsequently visited the Mexican State of Chiapas (1897), the Republic of Honduras (1898), Guatemala (Volcan de Santa Maria), and Nicaragua, and sent us many birds from those countries. Mr. H. Rogers was employed by me to visit Costa Rica (1877), and Mr. W. Lloyd and Mr. F. B. Armstrong investigated the provinces of Northern Mexico. Dr. G. F. Gaumer, who accompanied me for a short time in 1888, added to our collection many birds from Cozumel, Mugeres, Holbox, Ruatan, and other islands off the coasts of Yucatan and Honduras, as well as from the mainland of Yucatan. Mr. F. Blancaneaux sent us various forms from British Honduras, Mr. C. F. Underwood an extensive series from Costa Rica, and Mr. M'Leannan many birds from the line of the Panama Railway. The Mexican series purchased by us in 1889 from Señor F. Ferrari-Perez, Director of the Museum at Tacubaya, and the North-American collections acquired from Mr. Henshaw, Mr. W. E. D. Scott, and Mr. C. K. Worthen, have been of much assistance in identifying many of the species, Professor Ridgway having been kind enough to critically examine and determine all the specimens

belonging to the Henshaw collection before they were sent to England. We are also much indebted to Professor Ridgway and the late Professor Baird, of the Smithsonian Institution, and others, for the loan of various birds.

Salvin's numerous ornithological papers (some of them written in collaboration with Dr. P. L. Sclater), based upon the collections made by him or by myself in Guatemala and British Honduras, are almost too well known to need recapitulation. Still, it will not be out of place to give the titles of the most important of them here:—

(1) Ornithology of Central America, by P. L. Sclater and O. Salvin. Ibis, 1859, pp. 1–22, 117–138, 213–234.
(2) Contributions to the Ornithology of Guatemala, by O. Salvin and P. L. Sclater. Ibis, 1860, pp. 28–45, 272–278, 396–402.
(3) Notes on the Humming-birds of Guatemala, by O. Salvin. Ibis, 1860, pp. 259–272.
(4) History of the Derbyan Mountain-Pheasant, by O. Salvin. Ibis, 1860, pp. 248–253.
(5) On the Nesting of some Guatemalan Birds, by Robert Owen, with some remarks by O. Salvin. Ibis, 1861, pp. 58–69.
(6) Quezal-shooting in Vera Paz, by O. Salvin. Ibis, 1861, pp. 138–149.
(7) A List of Species to be added to the Ornithology of Central America, by O. Salvin. Ibis, 1861, pp. 351–357.
(8) A Fortnight among the Sea-birds of British Honduras, by O. Salvin. Ibis, 1864, pp. 372–387.
(9) The Sea-birds and Waders of the Pacific Coast of Guatemala, by O. Salvin. Ibis, 1865, pp. 187–199.
(10) A Further Contribution to the Ornithology of Guatemala, by O. Salvin. Ibis, 1866, pp. 188–206.
[612 species were known from Guatemala at this date: it includes Godman's captures, and makes some corrections to the first paper.]
(11) On the Psittacidæ of Central America, by O. Salvin. Ibis, 1871, pp. 86–100.
(12) Nomenclator Avium Neotropicalium, by P. L. Sclater and O. Salvin. (1873.)

The eighty-four hand-coloured Plates issued in this work (including XV. *a*, LIV. *a*, LVIII. *a*, LVIII. *b*, and LIX. *a*) have all been drawn by Mr. J. G. Keulemans.

In conclusion, I may state that the whole of our Ornithological Collections, numbering about 85,000 specimens, have been presented by Salvin and myself to the National Museum at South Kensington.

F. D. G.

November 1904.

Geographical Distribution of the Families of Birds represented in Mexico and Central America [1].

	N. Am.	Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I.												
PASSERES.												
Turdidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	
Cinclidæ	*	*	...	*	...	†	*	*	*	...	Europe, Asia, N. Africa.	In the tropics in the vicinity of mountain-streams.
Sylviidæ	*	*	†	*	*	*	*	*	*	*	Generally distributed.	
Paridæ	*	*	...	*	...	...	...	...	...	...	Europe, Asia, Africa.	Not represented in S. America.
Sittidæ	*	*	...	...	...	...	...	...	...	...	Generally distributed.	Not south of Mexico: in Mexico on the mountains only.
Certhiidæ	*	*	...	*	...	†	...	...	...	...	Generally distributed.	Not represented in S. America.
Troglodytidæ	*	*	*	*	*	*	*	*	*	*	Europe, Asia.	
Motacillidæ	*	*	...	*	...	...	...	...	*	...	Generally distributed.	[&c.
Mniotiltidæ	*	*	*	*	*	*	*	*	*	*	Absent.	Peculiar to America, many species wintering in Mexico,
Vireonidæ	*	*	*	*	*	*	*	*	*	*	Absent.	Peculiar to America.
Laniidæ	*	*	...	...	...	...	...	...	...	...	Generally distributed.	Not represented in S. America.
Ampelidæ	*	*	...	*	*	†	*	*	...	*	Generally distributed.	
Hirundinidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	
Cœrebidæ	...	*	*	*	*	*	*	*	*	*	Absent.	Peculiar to America.
Tanagridæ	*	*	*	*	*	*	*	*	*	*	Absent.	Peculiar to America.
Fringillidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	
Icteridæ	*	*	*	*	*	*	*	*	*	*	Absent.	Peculiar to America.
Corvidæ	*	*	*	*	*	*	*	*	*	...	Generally distributed.	
Alaudidæ	*	*	...	...	...	...	...	...	*	...	Generally distributed.	In S. America in the Andes of Colombia only.
Vol. II.												
Oxyrhamphidæ	...	...	...	...	...	...	*	*	*	...	Absent.	Peculiar to Tropical America.
Tyrannidæ	*	*	*	*	*	*	*	*	*	*	Absent.	Peculiar to America: N.-American species migratory.
Pipridæ	...	*	*	*	*	*	*	*	*	...	Absent.	Peculiar to Tropical America.
Cotingidæ	*	*	*	*	*	*	*	*	*	...	Absent.	Almost peculiar to Centr. and S. America, one species only (*Hadrostomus aglaiæ*) reaching north of Mexico.
Dendrocolaptidæ	...	*	*	*	*	*	*	*	*	...	Absent.	Peculiar to Tropical America.
Formicariidæ	...	*	*	*	*	*	*	*	*	...	Absent.	Peculiar to Central and S. America.
Pteroptochidæ [2]	...	...	...	...	...	...	*	...	*	...	Absent.	Peculiar to Central and S. America (*Scytalopus*).
MACROCHIRES.												
Trochilidæ	*	*	*	*	*	*	*	*	*	*	Absent.	Peculiar to America.
Cypselidæ	*	*	...	*	*	*	*	*	*	*	Generally distributed.	Temperate and tropical regions generally.
Caprimulgidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	
PICI.												
Picidæ	*	*	*	*	*	*	*	*	*	*	Europe, Asia, Africa.	Absent from Madagascar, the Moluccas, Australia, &c.
COCCYGES.												
Momotidæ	...	*	*	*	*	*	*	*	*	...	Absent.	Peculiar to Tropical America.
Alcedinidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	One genus only (*Ceryle*, with very few species) in America.
Trogonidæ	*	*	*	*	*	*	*	*	*	*	Tropical Asia and Africa.	Peculiar to Central and S. America.
Galbulidæ	...	*	*	*	*	*	*	*	*	...	Absent.	Peculiar to Central and S. America.
Bucconidæ	...	*	*	*	*	*	*	*	*	...	Absent.	Peculiar to Central and S. America.
Cuculidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	
Capitonidæ	...	...	...	...	...	...	*	*	*	...	Tropical Africa and Asia.	
Rhamphastidæ	...	*	*	*	*	*	*	*	*	...	Absent.	Peculiar to Central and S. America.
PSITTACI.												
Psittacidæ	*	*	*	*	*	*	*	*	*	...	Tropical Asia, Africa, Australia.	Only one species found north of Mexico.
Vol. III.												
STRIGES.												
Strigidæ	*	*	...	*	*	*	*	*	*	*	Generally distributed.	Extending to the Galapago Is.
Asionidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Cosmopolitan.

[1] The dagger (†) indicates that one or more species were subsequently sent us from these districts.
[2] *Zeledonia* was doubtfully referred to this family: it appears, however, from recent investigations, to be a purely Oscinine form.

Geographical Distribution of the Families (*continued*).

	N. Am.	Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*).												
ACCIPITRES.												
Pandionidæ	*	*	*	*	*	*	...		*	*	Generally distributed.	Cosmopolitan.
Falconidæ	*	*	*	*	*	*	*		*	*	Generally distributed.	Cosmopolitan.
Sarcorhamphidæ	*	*	*	*	*	*	*	*	*	*	Absent.	American representatives of the Old World Vulturidæ.
STEGANOPODES.												
Phaëthontidæ	*	*	...	...	*	...	*	...	...	*	Tropical regions only.	Tropical and subtropical seas generally.
Fregatidæ	*	*	*	*	*	*	*	*	*	*	Tropical regions only.	Tropical and subtropical seas generally.
Pelecanidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Temperate and tropical coasts of both Hemispheres.
Sulidæ	*	*	*	...	*	*	*	*	...	*	Generally distributed.	Nearly every Temperate and Tropical ocean.
Phalacrocoracidæ	*	*	*	*	...	*	*	*	*	*	Generally distributed.	Sea-coasts and inland lakes generally.
Plotidæ	*	*	...	*	*	*	*	*	*	...	Tropical regions only.	Tropical lakes and rivers.
HERODIONES.												
Ardeidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	
Cancromidæ	...	*	*	*	...	*	*	*	*	...	Absent.	Confined to Central and South America.
Ciconiidæ	*	*	...	*	...	*	*	*	*	...	Generally distributed.	[of both Hemispheres.
Plataleidæ	*	*	...	*	...	*	*	*	*	...	Absent.	Generally distributed in Temperate and Tropical portions
Ibididæ	*	*	*	*	...	*	*	*	*	*	Absent.	Generally distributed in Temperate and Tropical portions
Phœnicopteridæ	*	*	...	...	...	...	...	...	*	...	Europe, Asia, Africa.	[of both Hemispheres.
ANSERES.												
Anatidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Cosmopolitan.
COLUMBÆ.												
Columbidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Cosmopolitan.
Peristeridæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Cosmopolitan.
GALLINÆ.												
Cracidæ	*	*	*	*	*	*	*	*	*	...	Absent.	Tropical and Subtropical America only.
Meleagridæ	*	*	*	*	...	...	...	...	...	...	Absent.	Confined to N. Amer., Mexico, and N. part of Centr. Amer.
Phasianidæ	*	*	*	*	*	*	*	*	*	*	Europe, Asia, Africa.	Represented by the Odontophorinæ.
GERANOMORPHÆ.												
Rallidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Cosmopolitan.
Heliornithidæ	...	*	*	*	*	*	*	*	*	...	Tropical regions only.	Tropical areas of both Hemispheres.
Aramidæ	*	*	*	...	*	*	*	...	*	*	Absent.	Tropical and Subtropical America.
Eurypygidæ	...	...	...	*	...	...	*	*	*	...	Absent.	Peculiar to Tropical America.
Gruidæ	*	*	...	...	...	...	...	...	...	*	Generally distributed.	Temperate and tropical regions of the Old World, not passing south of Mexico in America.
LIMICOLÆ.												
Œdicnemidæ	...	*	...	*	*	*	*	*	*	*	Generally distributed.	[America. Almost cosmopolitan; not reaching north of Mexico in
Parridæ	*	*	*	*	*	*	*	*	*	*	Tropical regions only.	Tropical and subtropical regions.
Charadriidæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Cosmopolitan; many species migrating north to breed.
GAVIÆ.												
Laridæ	*	*	*	*	*	*	*	*	*	*	Generally distributed.	Atlantic and Pacific Oceans generally.
Procellariidæ	*	*	...	...	...	...	...	*	...	...	Generally distributed.	Atlantic and Pacific Oceans generally.
TUBINARES.												
Puffinidæ	*	*	...	...	...	...	...	...	*	*	Generally distributed.	Atlantic and Pacific Oceans generally.
Diomedeidæ	...	*	...	...	...	...	...	*	*	...	.....	Chiefly oceans of Southern Hemisphere.
PYGOPODES.												
Colymbidæ	*	*	...	..	...	...	...	...	...	...	.....	[south as Mexico.
Podicipedidæ	*	*	...	*	*	...	*	...	*	*	N. Europe and N. Asia.	North parts of both Hemispheres: in America as far Cosmopolitan.
ALCÆ.												
Alcidæ	*	*	...	...	...	...	...	...	...	...	N. Europe and N. Asia.	Northern oceans.
CRYPTURI.												
Tinamidæ	...	*	*	*	*	*	*	*	*	...	Absent.	Represented in Central America by the Tinaminæ.

Geographical Distribution of the Species of Birds of Mexico and Central America [1].

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I.													
TURDIDÆ.													
Catharus melpomene			*		*	†		*					A genus occurring throughout Colombia, Venezuela, Ecuador, Peru, and Bolivia.
—— alticola			†		*								
—— frantzii								*					
—— occidentalis		†	*										
—— fuscater								*	*	*			
—— griseiceps									*				
—— gracilirostris								*					
—— mexicanus			*		*		†	*	*				
—— dryas			†		*					*			
Turdus mustelinus	*		*	†	*	*	†	†			*		
—— fuscescens	*					†		†	*	*	*		
—— swainsoni	*		*		*		†	*	*	*	*		
—— ustulatus	*	*	*		*		†						
—— aliciæ	*				†	†		*	*	†	*	N.E. Asia.	
—— pallasi	*		†		*								
—— auduboni	†	†	*		*								
—— tristis		†	*										
—— leucauchen			†	†	†	†	†	†	†				
—— plebeius			†		†		†	*					
—— grayi		*	*	†	*	*	*	*	*	*			
—— obsoletus								*	*				
—— migratorius	*		*		*						*		
—— flavirostris		*	*										
—— rufitorques			†		*								
—— pinicola			*										
—— infuscatus			*		*								
—— nigrescens								*	*				
Galeoscoptes carolinensis	*		*	*	*	*	*		*		*		Bahama Is.
Melanoptila glabrirostris				*		*							Genus peculiar to Central America.
Melanotis cærulescens		*	*										Genus peculiar to Central America.
—— hypoleucus			†		*	†							
Harporhynchus longirostris	*		*										
—— ocellatus			*										
—— curvirostris	*	*	*										
—— graysoni		*											Peculiar to Socorro I.
Mimus polyglottus	*	*	*										Genus extending to Galapago Is.
—— gilvus			*	*	*	*				*	*		
Rhodinocichla rosea		*			*?			*	*	*			
Myiadectes obscurus		*	*		*								Genus occurring also in S. America and W. Indies.
—— unicolor			*		*								
—— melanops						†	†	*	†				
CINCLIDÆ.													
Cinclus mexicanus	*		*		*		†						Genus also found in the S.-American Andes and in the mountains of the Old World.
—— ardesiacus								*	*				
SYLVIIDÆ.													
Sialia sialis	*		*	†	*	*	†				*		Bermuda. A N.-American genus extending south [to Nicaragua.
—— mexicana	*	*	*										
Regulus satrapa	*		*		*								Genus also represented in the Old World
—— calendula	*	†	*		*								
Polioptila cærulea	*	*	*	†	*						*		Bahama Is.
—— nigriceps		*	*			*				*			
—— bilineata			†		*	*	*	*	*	*			
—— albiloris		†	*		*		*						
PARIDÆ.													
Lophophanes atricristatus	*	†	*										Genus also found in the Old World.
—— wollweberi	*	†	*										[confined to the high mountains.
Parus meridionalis		†	*										Genus also found in the Old World: in Mexico
Psaltriparus melanotis			*		*								Genus also represented in N. America.
Auriparus flaviceps	*	*											Lower California.

[1] The dagger (†) indicates that specimens were subsequently sent us from these districts.

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
SITTIDÆ.													
Sitta aculeata	*	†	*	...	...	...	...	...	...	...	...	.....	Genus also found in the Old World.
—— pygmæa	*	†	*										
CERTHIIDÆ.													
Certhia mexicana	...	†	*	...	*	...	†	...	...	...	...	.....	[Old World. Genus also represented in N. America and in the
TROGLODYTIDÆ.													
Campylorhynchus albibrunneus	...	...	...	...	...	...	...	...	*	...	...	.....	Genus extending to S. America.
—— capistratus	...	...	*	*	*	*	*	*					
—— humilis	...	*	*										
—— jocosus	...	...	*										
—— gularis	...	†	*										
—— brunneicapillus	*	*	*										
—— guttatus	...	...	*										
—— zonatus	...	...	*	...	*	†	†	*					
—— pallescens	...	†	*										
Salpinctes obsoletus	*	*	*	...	*	*	...	...	...	...	...	.....	Lower California.
Catherpes mexicanus	*	*	*										
—— sumichrasti	...	...	*										
Cyphorhinus lawrencii	...	...	...	...	...	...	...	*	*	...	...	.....	Genus represented in S. America.
Microcerculus philomela	...	...	...	...	*	...	...	...	...	...	...	.....	Genus represented in S. America.
—— luscinia	...	...	...	...	...	...	...	...	*				
Uropsila leucogastra	...	*	*										
Henicorhina leucosticta	...	...	*	...	*	...	...	*	*	*			
—— leucophrys	...	...	*	...	*	...	...	*	*	*			
Thryophilus rufalbus	...	...	...	...	*	†	†	*	*	*			
—— sinaloa	...	*											
—— modestus	...	...	...	...	*	*	...	*	*				
—— zeledoni	...	...	...	...	...	...	...	*					
—— leucotis	...	...	...	...	...	...	...	...	*	*			
—— thoracicus	...	...	...	...	...	...	*	*	*				
—— pleurostictus	...	...	*	...	*	*	*	*					
—— nisorius	...	...	*										
—— semibadius	...	...	...	...	...	...	...	...	*				
—— castaneus	...	...	...	...	...	...	...	*	*				
—— nigricapillus	...	...	...	...	...	...	...	...	*	*			
Thryothorus fasciativentris	...	...	...	...	...	...	...	*	*	*	...	.....	Genus represented in the W. Indies.
—— atrigularis	...	...	...	...	...	...	*	*					
—— hyperythrus	...	...	...	...	...	...	...	†	*				
—— maculipectus	...	†	*	*	*	*	†						
—— felix	...	*	*										
—— lawrencii	...	*	...	...	...	...	...	...	...	...	...	.....	Tres Marias Is. only.
—— berlandieri	*	*											
—— albinucha	...	...	*	...	*								
—— bairdi	*	*	*										
Troglodytes aedon	*	*	*	...	...	...	...	...	...	...	...	.....	Genus also found in the Old World.
—— insularis	...	*	...	...	...	...	...	...	...	...	...	.....	Peculiar to Socorro I.
—— intermedius	...	...	*	...	*	...	...	*					
—— furvus	...	...	...	...	...	...	...	...	*	*			
—— solstitialis	...	...	...	...	...	...	...	*	*				
—— brunneicollis	...	...	*	...	*								
Cistothorus palustris	*	*	*	...	...	...	...	...	...	...	...	.....	Genus distributed through N. America generally,
—— polyglottus	...	...	*	†	*	...	...	†	*	*			and over nearly the whole of S. America.
MOTACILLIDÆ.													
Anthus ludovicianus	*	*	*	...	*	...	...	...	...	...	...	.....	[Genus widely distributed in the Old World. Migrates in winter as far south as Guatemala.
—— rufus	...	...	...	...	...	...	...	...	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
MNIOTILTIDÆ.													
Mniotilta varia	*	*	*	*	*	†	†	*	*	*	*	.....	[tidæ wintering in Mexico and Central America.
Protonotaria citrea	*	...	*	...	...	†	†	*	*	*	*		One of the many N.-American species of Mniotil-
Helminthotherus vermivorus	*	...	*	...	*	†	†	*	*	...	*		
Helminthophaga chrysoptera	*	...	*?	...	*	...	†	*	*	*	*		
—— pinus	*	..	*	...	*	...	†						
—— ruficapilla	*	†	*	...	*								
—— celata	*	†	*	...	*								
—— peregrina	*	...	*	...	*	*	†	*	*	*			
Parula americana	*	...	*	...	*	†	†	...	...	...	*	.....	Genus extending to S. America.
—— inornata	...	...	†	...	*	...	†	*	*				
—— insularis	...	*	...	...	...	...	...	...	...	...	...	.....	Tres Marias Is. and Socorro I.
—— nigrilora	*	?											
—— superciliosa	...	†	*	...	*								
—— gutturalis	...	...	...	...	...	...	...	*	*				
Dendrœca æstiva	*	*	*	...	*	*	*	*	*	*			
—— vieilloti	...	*	*	*	...	†	...	*	*	*			
—— cærulescens	*	...	...	...	*	†	...	...	...	...	*		
—— coronata	*	†	*	*	*	*	†	*	*	...	*		
—— auduboni	*	*	*	...	*								
—— maculosa	*	...	*	*	*	†	†	...	*	...	*	.....	Bahama Is.
—— cærulea	*	...	*	...	*	*	...	*	*	*	*		
—— pennsylvanica	*	...	*	...	*	*	†	*	*	...	...	.....	Bahama Is.
—— castanea	*	...	*	†	*	...	...	†	*	*			
—— blackburniæ	*	...	*	...	*	...	*	*	*	*	...	.....	Bahama Is.
—— dominica	*	*	*	*	*	...	†	...	...	...	*		
—— decora	...	...	*	*	*	†							
—— nigrescens	*	†	*										
—— virens	*	†	*	†	*	†	...	*	*	...	*		
—— occidentalis	*	...	*	...	*								
—— chrysoparia	*	...	†	...	*								
—— townsendi	*	*	*	...	*								
—— discolor	*	...	†[1]	...	...	*	...	...	...	...	*	.....	Has been found at sea near Swan I.
Peucedromus olivaceus	*	†	*	...	*	...	†	...	...	...	...	.....	[tains. In Mexico and Guatemala confined to high moun-
Siurus auricapillus	*	*	*	...	*	*	*	*	*	...	*	.....	Bermuda Is.
—— noveboracensis	*	...	*	*	*	*	*	*	*	*	*		
—— motacilla	*	*	*	...	*	†	†	*	*	...	*		
Oporornis formosa	*	...	*	...	*	...	†	*	*	...	*	.....	Winter visitant to Central America.
Geothlypis trichas	*	*	*	...	*	*	†	*	*	...	*	.....	Bahama Is. A winter migrant from the north.
—— melanops	...	...	*										
—— speciosa	...	...	*										
—— chiriquensis	...	...	...	...	...	...	...	...	*				
—— caninucha	...	...	*	*	*	...	†	*	†				
—— poliocephala	...	*	†										
—— philadelphia	*	...	...	...	...	...	†	*	*	*	...	.....	A winter migrant from the north.
—— macgillivrayi	*	*	*	...	*	...	†	*	*	...	...	.....	A winter migrant from the north.
Icteria viridis	*	*	*	...	*	*	†	*	...	...	...	.....	Lower California.
Granatellus venustus	...	*	*	...	...	...	...	...	...	...	...	....	The only other known species of the genus is confined to Amazonia.
—— francescæ	...	*	...	...	...	...	...	...	...	...	...	.....	Tres Marias Is. only.
—— sallæi	...	...	*	...	*								
Cardellina rubrifrons	*	†	*	...	*								
Ergaticus ruber	...	*	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Mexico and Guatemala.
—— versicolor	...	...	†	...	*								
Myiodioctes canadensis	*	...	*	...	*	...	†	*	*	*	...	.....	} Migrating south from N. America in winter.
—— mitratus	*	...	*	*	*	*	...	...	*	...	*	....	
—— pusillus	*	*	*	...	*	...	†	*	*	...	...	.....	
Basileuterus bivittatus	...	...		...	...	...	...	*	*	*			
—— culicivorus	...	†	*	...	*	...	†	*	*				
—— leucopygius	...	...	...	...	...	†	*	*	*				
—— melanogenys	...	...	...	...	...	...	...	*	*				
—— belli	...	†	*	...	*								
—— rufifrons	...	*	*										

[1] Cozumel I.

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
MNIOTILTIDÆ (*contin.*).													
Basileuterus delattrii	...	...	†	†	*	†	*	†					
—— mesochrysus	...	...	...	...	...	...	...	*	*	*			
Setophaga ruticilla	*	...	*	*	*	*	†	*	*	*	*	... .	Bahama Is. A migratory species.
—— picta	*	*	*	...	*	*							
—— miniata	...	*	*	...	*								
—— aurantiaca	...	...	...	...	...	...	...	*	*				
—— torquata	...	...	...	...	...	...	...	*	*				
—— lacrymosa	...	*	*	...	*	...	†						
VIREONIDÆ.													
Vireo calidris	*	...	†	...	...	...	...	...	*	*	*	.....	Migrates down E. coast and to the W. Indies.
—— olivaceus	*	...	*	†	*	*	†	*	*	*	*		
—— flavoviridis	*	*	*	†	*	..	*	*	*	*	...	.....	Tres Marias Is.
—— magister	...	...	...	*[1]	...	†[1]							
—— philadelphicus	*	...	†	..	*	...	...	*	*				
—— gilvus	*	†	*	...	†	†							
—— amauronotus	...	...	*	...	...	†							
—— josephæ	...	...	...	...	...	...	...	*	*	*			
—— flavifrons	*	...	*	...	*	†	†	*	*	*	*		
—— solitarius	*	*	*	...	*	†	...	...	...	...	*		
—— cassini	*	*	†										
—— plumbeus	*	*	*										
—— atricapillus	*	*											
—— noveboracensis	*	†	*	†	*	*	...	...	...	...	*	.....	Bermuda.
—— belli	*	*	*										
—— ochraceus	...	*	*	*	*	†	†						
—— pallens	...	...	...	...	...	...	*	*					
—— huttoni	*	*	*	...	*								
—— carmioli	...	...	...	...	...	...	...	*	*				
—— hypochryseus	...	*	*	...	...	...	...	...	...	...	...	.....	Tres Marias Is.
Neochloe brevipennis	...	...	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Mexico.
Hylophilus decurtatus	...	...	*	†	*	*	*	*	*				
—— aurantiifrons	...	...	...	...	...	...	...	...	*	*			
—— ochraceiceps	...	...	*	...	*	...	†	*	*				
—— viridiflavus	...	...	...	...	...	...	...	...	*				
Vireolanius melitophrys	...	†	*	...	*								
—— pulchellus	...	...	*	...	*	...	*	*	*				
Cyclorhis flaviventris	...	...	*	†	*								
—— flavipectus	...	...	...	...	...	...	...	*	*	*			
LANIIDÆ.													
Lanius ludovicianus	*	*	*		...	...	...	...	...	...	...	.....	Genus widely distributed in the Old World.
AMPELIDÆ.													
Ampelis cedrorum	*	*	*	...	*	*	†	...	...	...	*		
Ptilogonys cinereus	...	†	*	...	*	...	...	...	...	...	...	.....	Genus peculiar to Central America.
—— caudatus	...	...	...	...	...	...	...	*	*				
Phainopepla nitens	*	*	*										
Phainoptila melanoxantha	...	...	...	...	...	...	...	*	†	...	...	.....	Genus peculiar to the mountains of Costa Rica.
HIRUNDINIDÆ.													
Progne purpurea	*	*	*	*	...	...	...	...	...	*	...	.....	Genus also represented in W. Indies.
—— chalybea	...	...	*	*	*	*	†	*	*	*			
Petrochelidon pyrrhonota	*	*	†	...	...	†	...	†	*	*	...	.....	Genus represented in S. Africa, India, and Australia.
—— swainsoni	...	...	*	...	*								
—— fulva	...	...	*	...	...	...	...	...	*	...	*		
Atticora cyanoleuca	...	...	...	...	...	...	...	*	†	*			
—— pileata	...	...	...	...	*								

[1] Subsequently received from Cozumel I. and Ruatan I.

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
HIRUNDINIDÆ (*contin.*).													
Atticora tibialis	...	...	...	...	...	...	...	...	*	*			
Hirundo erythrogaster	*	*	*	...	*	†	†	*	*	*	*	.....	Bermuda Is. A cosmopolitan genus.
Tachycineta thalassinus	*	*	*	...	*	†	...	...	...	...	...	.....	Genus widely represented in S. America.
—— bicolor	*	*	*	...	*	...	...	...	...	...	*	.....	Bermuda Is.
—— albilinea	...	*	†	*	*	*	*	*	*				
Stelgidopteryx serripennis	*	*	*	...	*	...	...	*	*				
—— uropygialis	...	...	...	...	...	...	...	*	*	*			
Cotile riparia	*	†	*	...	*	†	...	*	...	*	*	N. Asia and Europe, and in Africa in winter.	Bermuda Is.
CŒREBIDÆ.													
Diglossa baritula	...	...	*	...	*	...	...	...	...	...	...	.....	Genus represented in S.-American Andes.
—— plumbea	...	...	...	...	...	...	...	*	*				
Dacnis cayana	...	...	...	...	...	...	...	...	*	*			
—— ultramarina	...	...	...	...	...	...	*	*	*				
—— venusta	...	...	...	...	...	...	...	*	*	*			
—— viguieri	...	...	...	...	...	...	...	...	*				
Chlorophanes spiza	...	...	...	...	*	*	*	*	*	*			
Cœreba cyanea	...	...	*	*	*	*	*	†	*	*	*		
—— lucida	...	...	...	...	*	*	†	†	*				
Certhiola mexicana	...	...	*	...	*	...	†	*	*	*	...	.....	Genus largely represented in W. Indies.
—— caboti	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to Cozumel I.
TANAGRIDÆ.													
Chlorophonia occipitalis	...	...	*	...	*	...	...	...	...	...	...	.....	Genus represented in S. America.
—— callophrys	...	...	...	...	...	...	...	*	*				
—— cyanodorsalis	...	...	...	...	*								
Euphonia elegantissima	...	...	*	...	*	†	...	*	*				
—— affinis	...	*	*	*	*	†	*	*					
—— minuta	...	...	...	...	*	...	*	*	*	*			
—— gracilis	...	...	...	...	...	...	...	*	*				
—— luteicapilla	...	...	...	...	...	...	†	*	*				
—— hirundinacea	...	...	*	*	*	*	*	*					
—— gnatho	...	...	...	...	...	...	...	*					
—— laniirostris	...	...	...	...	...	...	...	*	*	*			
—— gouldi	...	...	*	*	*	†	*	*					
—— fulvicrissa	...	...	...	...	...	...	...	...	*	*			
—— annæ	...	...	...	...	...	...	...	*	*				
Calliste florida	...	...	...	...	...	...	...	*	*	...	...	.....	Genus represented in the island of St. Vincent.
—— guttata	...	...	...	...	...	...	...	*	*	*			
—— icterocephala	...	...	...	...	...	...	...	*	*	*			
—— gyroloides	...	...	...	...	...	...	...	*	*	*			
—— laviniæ	...	...	...	...	...	...	*	*	*				
—— cabanisi	...	...	...	...	*								
—— dowi	...	...	...	...	...	...	...	*	*				
—— inornata	...	...	...	...	...	...	...	...	*	*			
—— larvata	...	...	*	*	*	*	*	*	*	*			
Buthraupis arcæi	...	...	...	...	...	...	...	...	*	...	...	.....	Genus largely represented in S. America.
Tanagra cana	...	...	*	*	*	*	*	*	*	*			
—— abbas	...	...	*	*	*	*							
—— palmarum	...	...	...	...	...	...	†	*	*	*			
Rhamphocœlus passerinii	...	...	†	*	*	*	*	*	*				
—— icteronotus	...	...	...	...	...	...	...	...	*	*			
—— dimidiatus	...	...	...	...	...	...	*?	...	*	*			
—— luciani	...	...	...	...	...	...	...	...	*	*			
—— uropygialis	...	...	...	...	*								
Phlogothraupis sanguinolenta	...	...	*	*	*	*	*	*	...	...	...	.....	Genus peculiar to Central America.
Pyranga rubra	*	...	*	...	*	†	*	*	*	*	*	.....	Bermuda Is.
—— æstiva	*	*	*	†	*	*	*	*	*	*	*	.....	Bermuda Is.
—— cooperi	*	*											
—— hepatica	*	*	*	...	*								
—— testacea	...	...	...	...	...	...	*	*	*	*			
—— figlina	...	...	...	*	*	†							

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
TANAGRIDÆ (*contin.*).													
Pyranga roseigularis	...	...	*	...	...	†	...	...	...	...	...	.....	Yucatan.
—— erythrocephala	...	†	*										
—— erythromelæna	...	...	*	*	*	†	...	*	*				
—— bidentata	...	*	*	...	*	...	...	*	*				
—— ludoviciana	*	*	*	...	*	†	...	†					
Chlorothraupis olivacea	...	...	...	...	...	...	...	...	*	*			
—— carmioli	...	...	...	...	...	...	*	*	...	*			
Phœnicothraupis rubicoides	...	...	*	...	*	*	†						
—— vinacea	...	...	...	...	...	...	...	*	*				
—— fuscicauda	...	...	...	...	...	...	*	*	*	*			
—— salvini	...	...	*	*	*	†	†						
Lanio aurantius	..	...	*	*	*	*	...	...	...	...	...	.....	Genus represented in S. America.
—— leucothorax	...	...	...	...	...	...	*	*					
—— melanopygius	...	...	...	...	...	...	...	*	*				
Eucometis cristata	...	...	...	...	...	...	...	...	*	*			
—— spodocephala	...	...	*	*	*	*	*	*	*				
—— cassini	...	...	...	...	...	...	...	*	*	*			
Tachyphonus melaleucus	...	...	...	...	...	...	...	*	*	*			
—— luctuosus	...	...	...	...	...	...	*	*	*	*			
—— xanthopygius	...	...	...	...	...	...	...	*	*	*			
—— chrysomelas	...	...	...	...	...	...	...	...	*				
—— delattrii	...	...	...	...	...	...	...	*	*	*			
—— nitidissimus	...	...	...	...	...	...	...	*	*				
Chlorospingus ophthalmicus	...	...	*										
—— postocularis	...	...	...	...	*								
—— olivaceus	...	...	...	...	*								
—— albitemporalis	...	...	...	...	...	...	...	*	*	*			
—— punctulatus	...	...	...	...	...	...	...	...	*				
—— pileatus	...	...	...	...	...	...	...	*	*				
—— hypophæus	...	...	...	...	...	...	...	...	*				
Buarremon assimilis	...	...	...	...	...	...	...	*	...	*			
—— virenticeps	...	...	*										
—— brunneinucha	...	...	*	...	*	...	†	*	*	*			
—— gutturalis	..	...	...	...	*	...	†	*	*	*			
—— albinucha	...	...	*	...	...	...	...	...	...	*			
—— capitalis	...	...	...	...	...	...	...	*	*				
—— tibialis	...	...	...	...	...	...	...	*	*				
—— crassirostris	...	...	...	...	...	...	...	*	*				
Arremon aurantiirostris	...	...	*	*	*	...	*	*	*	...	...	.....	Genus largely represented in S. America.
Saltator atriceps	...	...	*	*	*	*	*	*	*				
—— magnoides	...	...	*	...	*	*	*	*	*				
—— grandis	...	†	*	...	*	*	†	*					
—— plumbeiceps	...	*	*										
—— albicollis	...	...	...	...	...	...	...	...	*	*			
Pitylus grossus	...	...	...	...	...	...	*	*	*	*			
—— celæno	...	†	*										
—— poliogaster	...	...	*	*	*	*	*	*	*				
FRINGILLIDÆ.													
Pheucticus chrysopeplus	...	*	†	...	...	...	...	...	...	...	...	.....	Genus represented in S.-American Andes.
—— tibialis	...	...	...	...	...	...	...	*	*				
Hedymeles ludovicianus	*	*	*	†	*	*	†	*	*	*	*	.....	Migratory species.
—— melanocephalus	*	*	*										
Cardinalis virginianus	*	*	*	*	...	†	...	...	...	...	...	.....	Genus represented in S. America.
—— igneus	*	*	...	...	...	...	...	...	...	...	...	.....	Lower California; Tres Marias Is.
—— carneus	...	*	†										
Pyrrhuloxia sinuata	*	*	*	...	...	...	...	...	...	...	...	.....	Lower California.
Guiraca cærulea	*	*	*	...	*	...	*	*	...	...	*		
—— concreta	...	...	*	*	*	*	*	*	*				
—— cyanoides	...	...	...	...	...	...	...	...	*	*			
—— parellina	...	*	*										
Oryzoborus nuttingi	...	...	...	...	...	...	*						
—— funereus	...	...	*	...	*	...	*	†	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
FRINGILLIDÆ (*contin.*).													
Amaurospiza concolor	...	...	...	...	...	...	...	*	*	...	...	.....	Genus peculiar to southern part of Centr. America.
Spermophila minuta	...	...	...	...	...	...	...	...	*	*			
—— parva	...	...	*	...	†	...	†		*				
—— torqueola	...	*	*										
—— moreleti	*	*	*	*	*	*	†	*					
—— aurita	...	...	...	...	...	...	...	*	*				
—— gutturalis	...	...	...	...	...	...	...	...	*	*			
—— corvina	...	...	*	...	*	*	*	*					
—— grisea	...	...	...	...	...	...	...	...	*	*			
Volatinia splendens	...	*	*	...	*	*	*	*	*	*			
Phonipara pusilla	...	†	*	...	*	†	†	*	*	*	...	.....	Genus largely represented in the Antilles.
—— intermedia	...	...	*	...	...	...	...	...	...	...	...	....	Peculiar to Cozumel I., Holbox I., & Yucatan.
Cyanospiza versicolor	*	*	*	...	*	...	...	...	...	...	...	.....	Lower California.
—— rositæ	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to Tehuantepec.
—— leclancheri	...	*	*										
—— amœna	*	*	*	...	...	...	...	...	...	...	...	.....	A migratory species.
—— cyanea	*	...	*	*	*	*	*	*	*	...	*	.....	Bahama Is.
—— ciris	*	*	*	*	*	*	*	*	*	...	*	.....	Bahama Is.
Haplospiza uniformis	...	...	*	...	...	...	...	...	...	...	...	.....	Genus represented in S. America.
Amphispiza bilineata	*	*											
—— quinquestriata	...	†	*										
Zonotrichia leucophrys	*	*	*	...	...	...	...	...	...	...	...	..... .	Lower California.
—— intermedia	*	*											
—— pileata	...	...	...	...	*	...	...	*	*	*			
—— vulcani	...	...	...	...	...	...	...	*					
Junco cinereus	...	†	*	...	...	...	...	...	...	...	...	.....	Genus largely represented in N. America.
—— alticola	...	...	...	...	*	...	...	...	...	...	...	.....	8000–12,000 ft.
Chondestes strigatus	*	*	*	...	*	...	...	...	...	...	...	.....	Genus represented in N. America.
Spizella socialis	*	*	*	...	...	...	...	...	...	...	*		
—— pinetorum	...	...	...	...	*	†	...	...	...	...	...	.....	Ruatan I.
—— pallida	*	*	*										
—— breweri	*	*											
—— atrigularis	*	*	*	...	...	...	...	...	...	...	...	.....	Lower California.
Passerculus sandwichensis	*	*	*	...	*								
—— rostratus	*	*	...	...	...	...	...	...	...	...	...	.....	Lower California.
Pœcetes gramineus	*	*	*	...	†								
Coturniculus passerinus	*	*	*	†	*	...	†	*	...	...	*	.....	Cozumel I.; genus represented in S. America.
—— petenicus	...	...	...	...	*	...	...	...	...	...	...	.....	Peculiar to Peten.
Melospiza lincolni	*	*	*	...	*	...	...	...	*	...	...	.....	
—— montana	*	*	...	...	...	...	...	...	...	...	...	.....	? Winter visitants to Mexico and Guatemala.
—— heermanni	*	...	*	...	...	...	...	...	...	...	...	.....	
Peucæa botterii	*	*	*										
—— cassini	*	†											
—— boucardi	*	†	*										
—— notosticta	...	...	*										
Hæmophila rufescens	...	†	*	...	*	†	...	...	...	...	...	.....	Genus also represented in S. America.
—— sumichrasti	...	...	*										
—— superciliosa	...	*	†										
—— ruficauda	...	...	...	...	*	*	*	*					
—— lawrencii	...	...	*										
—— acuminata	...	*	*										
—— humeralis	...	...	*										
—— mystacalis	...	...	*										
Chamæospiza torquata	...	...	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Mexico.
Pyrgisoma biarcuatum	...	...	†	...	*	...	...	...	...	...	...	.....	Genus represented in S. America.
—— kieneri	...	...	*?										
—— rubricatum	...	*	*										
—— cabanisi	...	...	...	...	...	...	...	*					
—— leucote	...	...	...	...	...	...	*	*					
—— occipitale	...	...	...	...	*								
Atlapetes pileatus	...	†	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Mexico. Alpine.
Pipilo macronyx	...	...	*										
—— carmani	...	*	...	...	...	...	...	...	...	...	...	.....	Peculiar to Socorro I.
—— maculatus	...	†	*	...	*								

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
FRINGILLIDÆ (*contin.*).													
Pipilo megalonyx	*	*	...	...	...	...	...	...	...	...	...	.....	Lower California.
—— fuscus	*	*	*										
—— rutilus	...	†	*										
Embernagra rufivirgata	*	*	...	...	...	...	...	...	...	...	...	.....	Genus represented in S. America.
—— crassirostris	...	...	*										
—— superciliosa	...	†	*	...	...	...	...	*[1]					
—— chloronota	...	...	*	*	*	†							
—— verticalis	...	...	*	...	...	†	...	...	...	...	...	.....	Peculiar to Yucatan and Meco I.
—— striaticeps	...	...	...	...	...	†	*	*	*				
—— chlorura	*	*	*										
Spiza americana	*	*	*	*	*	*	*	*	*	*			
Calamospiza bicolor	*	*	›										
Calcarius ornatus	*	†	*	...	...	...	...	...	...	...	...	.....	Genus represented in the Palæarctic Region.
Carpodacus cassini	*	†	*										
—— frontalis	*	*	†	...	...	...	...	...	...	...	...	.....	Lower California.
—— mexicanus	...	*	*										
Loxia mexicana	*	...	*	...	*								
Coccothraustes vespertinus	*	†	*										
—— abeillæi	...	...	*	...	*								
Chrysomitris pinus	*	...	*										
—— notata	...	...	*	...	*	†							
—— forreri	...	*											
—— atriceps	...	...	†	...	*								
—— xanthogaster	...	...	...	...	...	...	...	*	...	*			
—— mexicana	...	*	*	...	*	...	...	*	*				
Sycalis chrysops	...	...	*	...	*	...	...	...	...	...	...	.....	Genus largely represented in S. America.
Acanthidops bairdi	...	...	...	...	...	...	...	*	...	...	...	.....	Genus peculiar to Costa Rica.
ICTERIDÆ.													
Eucorystes wagleri	...	...	*	...	*	*	*	*	*	*			
Gymnostinops montezumæ	...	...	*	*	*	*	*	*	*				
—— guatemozinus	...	...	...	...	...	...	...	...	*	*			
Ostinops decumanus	...	...	...	...	...	...	...	...	*	*	...	.....	Genus represented in S. America.
Cassicus flavicrissus	...	...	...	...	...	...	...	...	*	*			
—— microrhynchus	...	...	...	...	...	...	*	*	*				
Cassiculus melanicterus	...	*	*	...	...	...	...	...	...	...	...	.....	Genus restricted to Mexico.
Cassidix oryzivora	...	...	*	†	*	*	*	†	*	*			
Amblycercus holosericeus	...	†	*	*	*	*	*	*	*	*			
Dolichonyx oryzivorus	*	...	*	*	...	†	†	*	*	*	*	.....	Galapago Is. (accidental?).
Molothrus pecoris	*	*	*	...	...	...	...	...	...	...	...	.....	Genus represented in S. America.
—— æneus	*	*	*	...	*	...	*	*	*				
Agelæus phœniceus	*	*	*	*	*	...	†	*	...	...	...	.....	Genus represented in Cuba.
—— gubernator	*	*	*										
Xanthocephalus longipes	*	*	*	...	...	...	...	...	...	...	*		
Sturnella magna	*	*	*	*	*	*	...	*	*	*	*		
Leistes guianensis	...	...	...	...	...	...	...	...	*	*			
Icterus baltimore	*	†	*	*	*	*	*	*	*	*	*		
—— bullocki	*	†	*										
—— abeillæi	...	...	*										
—— parisorum	*	*	*	...	...	...	...	...	...	...	...	.....	Lower California.
—— spurius	*	*	*	*	*	*	*	*	*	*	*		
—— wagleri	...	*	*	...	*								
—— prosthemelas	...	...	*	*	*	*	*	*	†				
—— maculi-alatus	...	...	...	...	*								
—— melanocephalus	*	*	*										
—— giraudi	...	...	*	...	*	*	*	*	*	*			
—— mesomelas	...	...	*	*	*	*	*	*	*	*			
—— cucullatus	*	*	*	*	...	...	...	...	...	...	*	.....	Mugeres I., Cozumel I.
—— nelsoni	*	*	...	...	...	...	...	...	...	...	...	.....	Lower California.
—— auratus	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to Yucatan and Meco I.
—— pectoralis	...	...	*	...	*	*	*	*					

[1] See Ridgway, Birds N. Am. i. pp. 449–450.

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. I. (*contin.*).													
ICTERIDÆ (*contin.*).													
Icterus gularis	...	...	*	*	*	*	*						
—— sclateri	...	...	*	...	*	†	*						
—— pustulatus	...	*	*	...	...	†	...	...	...	...	...	.....	Lower California.
—— graysoni	...	*	...	...	...	...	...	...	...	...	...	.....	Tres Marias Is. only.
Scolecophagus cyanocephalus	*	*	*	...	†								
Dives sumichrasti	...	...	*	*	*	†	...	...	...	...	...	.....	Genus represented in S. America and W. Indies.
Quiscalus macrurus	*	*	*	*	*	*	*	*	*	*	...	.....	Genus represented in W. Indies.
—— graysoni	...	*											
—— tenuirostris	...	...	*										
—— mexicanus	...	...	*										
CORVIDÆ.													
Corvus corax	*	*	*	...	*	*	...	...	...	...	...	Europe, N. and Centr. Asia.	
—— cryptoleucus	*	*											
—— mexicanus	*												
Cyanocitta macrolopha	*	*	†										
—— diademata	...	...	*	†									
—— coronata	...	...	*	...	*	*	†						
Aphelocoma californica	*	...	*										
—— ultramarina	...	*	*										
—— unicolor	...	...	*	...	*								
—— nana	...	...	*										
Cyanolyca sanblasiana	...	*	*	...	...	...	...	...	...	...	...	.....	Genus represented in northern part of S. America.
—— beecheyi	...	*											
—— yucatanica	...	...	*	*	*	†							
—— melanocyanea	...	...	...	...	*	*	*						
—— ornata	...	...	*	...	*								
—— cucullata	...	..	...	...	...	...	...	*	*				
—— pumilo	...	...	...	†	*								
—— argentigula	...	...	...	...	...	...	...	*					
Xanthura luxuosa	*	*	*	*	*	*	...	...	...	...	...	.....	Genus represented in S.-American Andes.
Cyanocorax affinis	...	...	...	...	...	...	...	*	*	*		.....	Genus peculiar to Central America.
Psilorhinus morio	...	*	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Central America.
—— mexicanus	...	*	*	*	*	*	*	*					
Calocitta colliei	...	*	*	...	...	...	...	...	...	...	...	....	Genus peculiar to Central America.
—— formosa	...	...	*	...	*	*	*	*					
ALAUDIDÆ.													
Otocorys chrysolæma	*	*	*	...	...	...	...	...	...	...	...	.....	Genus represented in Old World.
Vol. II.													
OXYRHAMPHIDÆ.													
Oxyrhamphus frater	...	...	...	...	...	...	...	*	*	...	...	.....	Genus represented in S. America.
TYRANNIDÆ.													
Copurus leuconotus	...	...	...	...	...	...	*	*	*	*			
Platyrhynchus cancrominus	...	...	*	*	*	...	*	†					
—— albogularis	...	...	...	...	...	...	...	*	*	*			
—— superciliaris	...	...	...	...	...	...	...	*	*	*			
Rhynchocyclus brevirostris	...	...	*	...	*	...	†	*	*				
—— æquinoctialis	...	...	...	...	...	...	...	...	*	*			
—— sulphurescens	...	...	...	...	...	...	...	...	*	*			
—— cinereiceps	...	...	*	*	*	*	*	*	*				
Todirostrum cinereum	...	...	*	*	*	*	*	*	*	*			
—— nigriceps	...	...	...	...	...	...	...	*	*	*			
—— schistaceiceps	...	...	*	*	*	...	*	*	*	*			
Oncostoma cinereigulare	...	...	*	*	*	†	†	*	*	...	...	.....	Genus peculiar to Central America.
—— olivaceum	...	...	...	...	...	...	...	...	*				
Lophotriccus squamicristatus	...	...	...	...	...	...	...	*	*	*			
Orchilus atricapillus	...	...	...	...	...	...	...	*	...	...	...	.....	Genus represented in S. America.
Colopterus pilaris	...	...	...	...	...	...	...	...	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
TYRANNIDÆ (*contin.*).													
Leptotriccus superciliaris	...	...	...	...	...	...	...	...	*	...	...	.....	Genus represented in S. America.
Pogonotriccus zeledoni	...	...	...	...	...	...	...	*	...	...	...	.....	Genus represented in S. America.
Serphophaga cinerea	...	...	...	...	...	...	...	*	*	*			
Mionectes olivaceus	...	...	...	...	...	...	...	*	*	*			
—— oleagineus	...	...	*	*	*	*	*	*	*	*			
Leptopogon superciliaris	...	...	...	...	...	...	...	*	*	*			
—— flavovirens	...	...	...	...	...	...	...	...	*				
—— pileatus	...	...	*	...	*	†	†	*	*				
Myiopagis placens	...	*	*	†	*	...	†	*	*	*			
—— macilvaini	...	...	...	...	...	...	...	...	*	*			
Capsiempis flaveola	...	...	...	...	...	...	*	†	*	*			
Ornithion imberbe	*	*	*	...	*	...	*	...	...	*			
—— pusillum	...	...	...	...	...	...	...	†	*	*			
Tyrannulus elatus	...	...	...	...	...	...	...	...	*	*			
—— semiflavus	...	...	*	...	*	...	*						
—— brunneicapillus	...	...	...	...	...	...	...	*	*				
Tyranniscus vilissimus	...	...	...	...	*	*	...	†	...	...	...	.....	Genus numerously represented in S. America.
—— parvus	...	...	...	...	†	...	†	*	*				
Elainea pagana	...	...	*	*	*	*	...	*	*	*			
—— martinica	...	...	*	*	...	...	...	...	...	...	*	.....	Grand Cayman I. and Old Providence I.
—— frantzii	...	...	...	...	*	...	*	*	*	*			
Sublegatus arenarum	...	...	...	...	...	...	...	*	...	*			
Legatus albicollis	...	...	*	†	*	...	†	*	*	*			
Myiozetetes cayennensis	...	...	...	...	...	...	...	*	*	*			
—— similis	...	*	*	*	*	*	*	*	*	*			
—— granadensis	...	...	...	...	...	...	*	*	*	*			
Pitangus derbianus	*	*	*	*	*	*	*	*	...	*	...	.....	Genus represented in Bahamas and W. Indies.
—— lictor	...	...	...	...	...	...	...	...	*	*			
—— albovittatus	...	...	...	...	...	...	...	...	*				
Sirystes albogriseus	...	...	...	...	...	...	...	...	*	...	...	.....	Genus represented in S. America.
Myiodynastes luteiventris	*	*	*	*	*	*	*	*	*	*			
—— audax	...	*	*	...	...	...	...	*	*	*			
—— hemichrysus	...	...	...	...	...	...	...	*	*				
Megarhynchus pitangua	...	*	*	†	*	*	*	*	*	*			
Muscivora mexicana	...	...	*	*	*	*	*	*	*				
Cnipodectes subbrunneus	...	...	...	...	...	...	...	...	*	*			
Myiobius barbatus	...	...	...	...	...	...	...	*	*	*			
—— sulphureipygius	...	...	*	*	*	...	*	*	*				
—— fulvigularis	...	...	...	...	...	...	...	*	*	*			
—— nævius	...	...	...	...	...	...	...	...	*	*			
—— capitalis	...	...	...	...	...	...	*	*					
Pyrocephalus rubineus	*	*	*	*	*	...	...	...	...	*			
Sayornis saya	*	*	*										
—— phœbe	*	*	*	...	...	...	...	...	...	...	*?		
—— nigricans	*	*	*										
—— aquatica	...	...	†	...	*	...	*	*					
Mitrephanes phæocercus	...	*	*	...	*	...	...	...	...	...	...	.....	Genus represented in S. America.
—— aurantiiventris	...	...	...	...	...	...	...	*	*				
Empidonax fulvifrons	*	*	*	...	*								
—— albigularis	...	...	*	...	*	...	...	...	*				
—— acadicus	*	...	*	...	...	*	...	*	*	*	*		
—— trailli	*	*	*	...	*	...	*	*	*	*			
—— minimus	*	*	*	*	*	*	...	†	*				
—— flaviventris	*	*	*	...	*	*	*	*	*				
—— bairdi	*	*	*										
—— salvini	...	...	...	...	*	*?							
—— flavescens	...	...	...	...	...	...	...	*	*				
—— hammondi	*	†	*	...	*								
—— obscurus	*	*	*										
—— affinis	...	*	*										
—— canescens	...	...	*										
—— atriceps	...	...	...	...	...	...	...	*	*				
Contopus borealis	*	*	*	...	*	...	...	*	*	*			
—— musicus	*	*	*	*	*								

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
TYRANNIDÆ (*contin.*).													
Contopus lugubris	...	...	...	...	...	...	...	*	*				
—— ardesiacus	...	...	...	...	...	...	...	...	*	*			
—— ochraceus	...	...	...	...	...	...	...	*					
—— virens	*	*	*	...	...	*	†	*	†	*	*		
—— richardsoni	*	*	*	*	*	†	†	*	*	*			
—— brachytarsus	...	...	*	*	*	*	*	...	*	*			
Myiarchus crinitus	*	*	*	*	*	...	...	*	*	*	*		
—— inquietus	...	...	*										
—— magister	*	*	*	*	*								
—— cinerascens	*	*	*	...	*	...	...	...	...	...	...	.....	Lower California.
—— nuttingi	...	...	*	...	...	...	*	*					
—— ferox	...	...	...	...	...	...	...	...	*	*			
—— yucatanensis	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to Yucatan and adjacent islands.
—— lawrencii	*	*	*	*	*	*	*	*	*				
—— nigriceps	...	...	...	...	...	...	...	...	*	*			
—— flammulatus	...	*	*										
Tyrannus pipiri	*	...	*	*	*	*	*	...	*	*	*	.....	Bahama Is.
—— griseus	*	...	*	...	...	...	*	...	*	*	*	.....	Bahama Is., Virgin Is.
—— vociferans	*	*	*	...	*	...	...	*					
—— verticalis	*	*	†	...	*								
—— melancholicus	*	*	*	*	*	*	*	*	*	*			
—— crassirostris	...	*	*	...	*								
—— magnirostris	...	...	†[1]	...	...	...	...	...	...	...	*	.....	Bahama Is.
Milvulus tyrannus	*	...	*	*	*	*	*	*	*	*			
—— forficatus	*	*	*	*	*	*	*	*					
PIPRIDÆ.													
Piprites griseiceps	...	...	...	...	...	...	...	*	...	...	...	.....	Genus represented n S. America.
Pipra mentalis	...	...	*	*	*	...	*	*	*				
—— auricapilla	...	...	...	...	...	...	...	...	*	*			
—— velutina	...	...	...	...	...	...	...	...	*	*			
—— leucocilla	...	...	...	...	...	...	...	...	*	*			
—— leucorrhoa	...	...	...	...	...	...	*	*	*	*			
Chiroxiphia lanceolata	...	...	...	...	...	...	...	...	*	*			
—— linearis	...	...	*	...	*	...	*	*					
Chiromachæris candæi	...	...	*	*	*	*	*	*					
—— vitellina	...	...	...	...	...	...	...	...	*	*			
—— aurantiaca	...	...	...	...	...	...	...	...	*				
Heteropelma veræpacis	...	...	*	*	*	*	...	*	*				
—— stenorhynchum	...	...	...	...	...	...	...	...	*	*			
COTINGIDÆ.													
Tityra semifasciata	...	*	*	*	*	*	*	*	*	*			
—— albitorques	...	...	*	*	*	*	*	*	*	*			
Hadrostomus aglaiæ	*	*	*	*	*	*	*	*					
—— homochrous	...	...	...	...	...	...	...	*	*	*			
Pachyrhamphus versicolor	...	...	...	...	...	...	...	*	...	*			
—— cinereus	...	...	...	...	...	...	...	...	*	*			
—— cinnamomeus	...	...	...	*	*	*	*	*	*	*			
—— cinereiventris	...	...	...	...	*	...	*	*	*	*			
—— major	...	*	*	...	*	*	*						
—— albogriseus	...	...	...	...	...	...	*	...	*	*			
Lathria unirufa	...	...	*	*	*	...	*	...	*	*			
Aulia rufescens	...	...	...	...	*	*	...	*	*	*			
Lipaugus holerythrus	...	...	*?	...	*	...	...	*	*	*			
Attila citreopygius	...	...	*	...	*	...	*	*	*				
—— gaumeri	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to Yucatan and adjacent islands.
—— cozumelæ	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to Cozumel I.
—— sclateri	...	...	...	...	...	...	*	*	*	*			
—— cinnamomeus	...	*	*										
—— hypoxanthus	...	...	*	...	*								

[1] Mugeres I.

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
COTINGIDÆ (*contin.*).													
Cotinga amabilis	...	...	*	...	*	...	...	*	*?	...	...	.....	Genus represented in S. America.
—— ridgwayi	...	...	...	...	...	...	...	*	*				
Carpodectes nitidus	...	...	...	...	...	...	*	*	...	...	...	.....	Genus peculiar to Central America.
—— antoniæ	...	...	...	...	...	...	...	*					
Chasmorhynchus tricarunculatus	...	...	...	...	...	...	...	*	*	...	...	.....	Genus represented in S. America.
Querula cruenta	...	...	...	...	...	...	...	*	*	*			
Cephalopterus glabricollis	...	...	...	...	...	...	...	*	*	...	...	.....	Genus represented in S. America.
DENDROCOLAPTIDÆ.													
Synallaxis albescens	...	...	...	...	...	...	...	...	*	*			
—— pudica	...	...	...	...	...	*	*	*	*	*			
—— erythrothorax	...	...	*	*	*	*							
Siptornis erythrops	...	...	...	...	...	...	...	*	*	*			
—— rufigenis	...	...	...	...	...	...	...	*					
Pseudocolaptes lawrencii	...	...	...	...	...	...	...	*	*	...	...	.....	Genus represented in S. America.
Automolus rufobrunneus	...	...	...	...	...	...	...	*					
—— virgatus	...	...	...	...	...	...	...	*					
—— rubiginosus	...	...	*										
—— veræpacis	...	...	...	...	*	...	...	...	...	...	...	.....	Peculiar to Vera Paz.
—— umbrinus	...	...	...	...	*	...	...	...	...	...	...	.....	Peculiar to the Pacific Slope.
—— guerrerensis	...	...	*	...	...	...	...	...	...	...	...	....	Peculiar to W. Mexico.
—— fumosus	...	...	...	...	...	...	...	...	*				
—— cervinigularis	...	...	*	...	*	...	...	*	*				
—— pallidigularis	...	...	...	...	...	...	*	*	*	*			
Philydor panerythrus	...	...	...	...	...	...	...	*	*	*			
—— fuscipennis	...	...	...	...	...	...	...	...	...	*			
Anabazenops variegaticeps	...	...	*	...	*	...	...	*	*				
—— subalaris	...	...	...	...	...	...	...	*	*	*			
Xenops genibarbis	...	...	*	*	*	...	...	*	*	*			
—— rutilus	...	...	...	...	...	...	...	*	*	*			
Sclerurus canigularis	...	...	...	...	...	...	...	*					
—— mexicanus	...	...	*	*	...	...	...	...	*	*			
—— guatemalensis	...	...	...	...	*	...	...	*	*	*?			
Margarornis rubiginosa	...	...	...	...	...	...	...	*	*				
—— brunnescens	...	...	...	...	...	...	...	*	*	*			
Dendrocincla anabatina	...	...	*	*	*	*	*	...	*				
—— homochroa	...	...	*	*	*	...	*	*	*				
—— ruficeps	...	...	...	...	...	...	...	...	*				
—— olivacea	...	...	...	...	...	*	...	*	*	*			
Glyphorhynchus cuneatus	...	...	*	...	*	...	*	*	*	*			
Sittosomus olivaceus	...	...	*	*	*	...	*	*	*	*			
Dendrornis eburneirostris	...	*	*	*	*	*	*	*					
—— nana	...	...	...	...	...	*	...	*	*				
—— erythropygia	...	...	*	...	*	...	...	...	*	*			
—— punctigula	...	...	...	...	...	...	...	*	*	*			
—— lacrymosa	...	...	...	...	...	...	*	*	*	*			
Xiphocolaptes emigrans	...	...	*	*	*	...	...	*	...	...	...	....	Genus represented in S. America.
Picolaptes leucogaster	...	*	*	...	...	...	...	...	...	...	...	.....	Genus represented in S. America.
—— affinis	...	...	*	...	*	...	...	*	*				
—— compressus	...	...	*	*	*	*	*	*	*				
—— gracilis	...	...	...	...	...	...	...	*					
Xiphorhynchus trochilirostris	...	...	...	...	...	...	...	...	*	*			
—— pusillus	...	...	...	...	...	...	...	*	*	*			
Dendrocolaptes puncticollis	...	...	...	...	*								
—— validus	...	...	...	...	...	...	...	*	*	*			
—— sancti-thomæ	...	...	*	*	*	*	*	*	*	*			
FORMICARIIDÆ.													
Cymbilanius lineatus	...	...	...	...	...	...	*	*	*	*			
Thamnophilus melanocrissus	...	...	*	...	*	*	*						
—— transandeanus	...	...	...	...	...	...	...	*	*	*			
—— punctatus	...	...	...	...	...	...	...	*	*				

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
FORMICARIIDÆ (*contin.*).													
Thamnophilus bridgesi	...	...	...	...	...	...	...	*	*				
—— virgatus	...	...	...	...	...	...	...	...	*				
—— atrinucha	...	...	...	...	...	*	...	*	*	*			
—— pulchellus	...	...	...	...	...	...	...	...	*	*			
—— doliatus	...	*	*	*	*	*	*	*	*	*			
—— nigricristatus	...	...	...	...	...	...	...	...	*	*			
Thamnistes anabatinus	...	...	...	...	*	...	...	*	*	...	...	.....	Genus represented in S. America.
Dysithamnus semicinereus	...	...	...	...	*	...	...	*	*	*			
—— puncticeps	...	...	...	...	...	...	...	*	*				
—— striaticeps	...	...	...	...	...	...	...	*					
Myrmotherula surinamensis	...	...	...	...	...	...	...	...	*	*			
—— fulviventris	...	...	...	...	...	*	...	*	*	*			
—— melæna	...	...	...	...	...	...	...	*	*	*			
—— menetriesi	...	...	...	...	*	...	*	*	*	*			
Terenura callinota	...	...	...	...	...	...	...	...	*	*			
Cercomacra tyrannina	...	...	*	*	*	*	*	*	*	*			
—— nigricans	...	...	...	...	...	...	...	..	*	*			
Formicivora boucardi	...	...	*	...	*	*	*	*	*	...	...	.....	Genus represented in S. America.
—— virgata	...	...	...	...	...	...	*	...	*				
Rhamphocænus semitorquatus	...	...	...	...	...	...	...	*	*	*			
—— rufiventris	...	...	*	*	*	*	*	*	*	*			
Gymnopithys bicolor	...	...	...	...	...	...	...	...	*	...	...	.....	Genus represented in S. America.
—— olivascens	...	...	...	...	...	*	*	*	*				
Gymnocichla nudiceps	...	...	...	...	...	...	...	...	*	*			
—— chiroleuca	.	...	...	...	...	*	...	*					
Myrmelastes immaculatus	...	...	...	...	...	...	...	*	*	*			
—— lawrencii	...	...	...	...	...	...	...	...	*				
—— intermedius	...	...	...	...	...	...	*	*	*				
—— occidentalis	...	...	...	...	...	...	...	*					
Myrmeciza swainsoni	...	...	...	...	...	...	...	...	*	*			
—— læmosticta	...	...	...	...	...	...	...	*	*				
—— stictoptera	...	...	...	...	...	...	...	*					
Hypocnemis nævioides	...	...	...	...	...	...	...	*	*	*			
Formicarius moniliger	...	...	*	*	*								
—— hoffmanni	...	...	...	...	...	...	*	*	*	*			
—— analis	...	...	...	...	...	...	...	*	*	*			
—— rufipectus	...	...	...	...	...	...	...	...	*	*			
Phlogopsis macleannani	...	...	...	...	...	...	*	*	*	...	...	.....	Genus represented in S. America.
Pittasoma michleri	...	...	...	...	...	...	...	...	*	...	...	.....	Genus peculiar to Central America.
—— zeledoni	...	...	...	...	...	...	...	*					
Grallaria guatemalensis	...	...	...	...	*	*	*	...	...	...	...	.....	Genus numerous in species in S.-American Andes.
—— mexicana	...	...	*										
—— princeps	...	...	...	...	...	...	...	*	*				
—— perspicillata	...	...	...	...	...	...	...	...	*				
—— lizanoi	..	...	...	...	...	...	...	*					
—— intermedia	...	...	...	...	...	...	...	*					
—— dives	...	...	...	...	...	...	*	*					
Grallaricula flavirostris	...	...	...	...	...	...	...	*	*	*			
PTEROPTOCHIDÆ.													
Scytalopus argentifrons	...	...	...	...	...	...	...	*	...	...	...	.....	Genus numerously represented in S. America.
Zeledonia coronata [1]	...	...	...	...	...	...	...	*	...	...	...	.....	Genus peculiar to Costa Rica.
TROCHILIDÆ.													
Heliothrix barroti	...	...	...	*	*	*	*	*	*	*			
Hemistephania veraguensis	...	...	...	...	...	...	...	*	*	...	...	.....	Genus represented in S. America.
Glaucis hirsuta	...	...	...	...	...	...	...	*	*	*	*		
Iache latirostris	*	*	*										
—— magica	...	*											
—— lawrencii	...	*	...	...	...	...	...	...	...	...	...	.....	Tres Marias only.
—— doubledayi	...	...	*										
Phæoptila sordida	...	...	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Mexico.

[1] See footnote, *anteà*, p. xi.

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
TROCHILIDÆ (*contin.*).													
Chlorostilbon auriceps			*										Genus represented in S. America.
—— forficatus			*										Peculiar to the islands off the coast of Yucatan.
—— caniveti		*	*	*	*	*	*	*					
—— assimilis									*				
Thalurania townsendi						*							
—— colombica							*	*	*	*			
Microchera albocoronata									*				Genus peculiar to Central America.
—— parvirostris							*	*					
Callipharus nigriventris								*	*				
Eupherusa eximia			*		*		*						Genus peculiar to Central America.
—— egregia								*	*				
—— poliocerca			*										
Elvira chionura								*	*				Genus peculiar to Central America.
—— cupreiceps								*					
Hypuroptila buffoni									*	*			
—— urochrysea									*	*			
—— isauræ								*	*				
—— melanorrhoa							*	*					
Lampornis violicauda									*	*			
—— prevosti		*	*	*	*	*		*		*			
—— hendersoni									*				Peculiar to Old Providence I.
—— veraguensis									*				
Petasophora thalassina			*		*								
—— cyanotis								*	*	*			
—— delphinæ					*	*	*	*	*	*			
Panterpe insignis								*	*				Genus peculiar to Central America.
Agyrtria luciæ						*							Genus with many species in S. America.
—— candida			*	*	*	*	*						
Arinia boucardi								*					Genus peculiar to Central America.
Cyanomyia verticalis		*	*										Genus represented in S. America.
—— violiceps			*										
—— viridifrons			*										
—— guerrerensis			*										Peculiar to Western Mexico.
—— microrhyncha					*								
—— cyanocephala			*										
—— guatemalensis				*	*	*	*						
Amazilia cinnamomea		*	*	*	*	*	*	*					
—— graysoni		*											Peculiar to Tres Marias Is.
—— beryllina		*	*										
—— devillii			*		*	*							
—— cyanura					*		*						
—— ocai			*										
—— sumichrasti			*										
—— yucatanensis			*		*								
—— cerviniventris	*	*	*										
—— riefferi	*	*	*	*	*	*	*	*	*	*			
—— edwardi									*				
—— niveiventris								*	*				
—— sophiæ							*	*					
Floricola longirostris			*		*	*	*	*	*	*			
—— constanti			*		*	*	*	*					
—— leocadiæ		*	*										
Cyanophaia cæruleigularis								*	*	*			
Damophila panamensis								*?	*				
—— juliæ									*	*			
Polyerata amabilis								*	*	*			
—— decora									*				
Chrysuronia eliciæ					*	*	*	*	*				Genus represented in S. America.
Basilinna leucotis		*	*		*		*						Genus represented in Lower California.
Eutoxeres salvini								*	*				Genus represented in S.-American Andes.
Threnetes ruckeri					*			*	*				Genus represented in S. America.
Phaethornis emiliæ								*	*	*			
—— longirostris			*	*	*	*	*	*	*	*			
Pygmornis adolphi			*		*	*	*	*	*				

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
TROCHILIDÆ (*contin.*).													
Pygmornis striigularis	...	...	...	...	...	...	...	...	*	*			
Sphenoproctus pampa	...	...	*	...	*	...	...	...	...	...	...	.....	Genus peculiar to Central America.
—— curvipennis	...	*	*										
Campylopterus hemileucurus	...	...	*	...	*	*	*	*	*	...	...	.....	Genus represented in S. America.
—— rufus	...	...	...	...	*	*							
Phæochroa cuvieri	...	...	...	...	...	...	..	*	*	*?			
—— roberti	...	...	...	*	*	*	*						
Eugenes fulgens	*	*	*	...	*	...	*						
—— spectabilis	...	...	...	...	...	...	...	*					
Cœligena clemenciæ	*	*	*										
Oreopyra leucaspis	...	...	...	...	...	...	...	...	*	...	...	.....	Genus peculiar to Central America.
—— cinereicauda	...	...	...	...	...	...	...	*					
—— calolæma	...	...	...	...	...	...	...	*	*				
—— pectoralis	...	...	...	...	...	...	...	*					
Delattria henrici	...	...	*	...	*	...	...	...	...	...	...	.....	Genus peculiar to Central America.
—— margarethæ	...	...	*	...	...	...	...	...	..	..	...	.....	Peculiar to Western Mexico.
—— viridipallens	...	...	...	...	*								
—— sybillæ	...	...	...	...	...	...	*						
—— hemileuca	...	...	...	...	...	...	...	*					
Lamprolæma rhami	...	...	*	. .	*	...	...	...	...	...	...	.....	Genus peculiar to Mexico and Guatemala.
Heliodoxa jacula	...	...	...	...	...	...	...	*	*	*			
Florisuga mellivora	...	...	*	*	*	*	*	*	*	*			
Abeillia typica	...	...	*	...	*	...	*	...	...	...	...	.....	Genus peculiar to Central America.
Klais guimeti	...	...	...	...	...	...	*	*	*	*			
Doricha enicura	...	...	..	...	*	...	...	...	...	...	...	.....	Genus represented in Bahamas.
—— elizæ	...	...	*										
—— bryantæ	..	...	...	...	...	...	...	*	*				
Tilmatura duponti	...	...	*	...	*	...	*	...	...	...	...	.....	Genus peculiar to Central America.
Calothorax lucifer	...	*	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Central America.
—— pulcher	...	...	*										
Selasphorus floresii	*	...	*										
—— rufus	*	...	*	...	...	...	...	...	...	...	...	.....	Extends northward to British North America.
—— scintilla	...	...	...	...	...	...	...	*	*				
—— torridus	..	...	...	...	...	...	...	*	*				
—— platycercus	*	*	*	...	*								
—— ardens	...	...	..	...	...	...	...	*	*				
—— flammula	...	...	...	...	...	...	...	*					
Trochilus colubris	*	*	*	...	*	...	*	*	*	...	...	.....	Extends northward to British North America.
—— alexandri	*	*	*										
Atthis heloisæ	...	*	*	...	...	...	...	...	...	...	...	.....	Genus also represented in California.
—— ellioti	...	...	...	...	*								
Stellula calliope	*	...	*										
Lophornis delattrii	...	...	...	...	...	...	...	...	*	*			
—— helenæ	...	...	*	...	*	*	...	*					
—— adorabilis	...	...	...	...	...	...	...	*	*				
Prymnacantha conversi	...	...	...	...	...	...	...	*	*	*			
CYPSELIDÆ.													
Aëronautes melanoleucus	*	...	*	...	*								
Panyptila cayennensis	...	...	...	...	...	...	...	..	*	*			
—— sancti-hieronymi	...	...	...	...	*								
Chætura zonaris	...	..	*	...	*	...	...	*	*	*	*		
—— semicollaris	...	...	*										
—— pelagica	*	...	*	...	*?								
—— vauxi	*	...	*	...	*	*	*	*					
—— gaumeri	...	...	*	...	...	...	*	*	*				
—— fumosa	...	...	..	...	...	...	*	*	*	*			
—— brunneitorques	...	...	*	...	*	...	...	*	*	*			
Cypseloides niger	*	*	*	...	..	...	...	*	...	*	*		
—— cherriei	...	...	...	...	...	...	...	*					

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
CAPRIMULGIDÆ.													
Caprimulgus carolinensis	*	*	*	...	*	...	*	*	*	*	*		
—— rufus	...	...	...	...	...	...	...	...	*	*	*		
—— vociferus	*	*	*	...	*	*	...	...	...	...	*		
—— macromystax	*	...	*	...	*								
—— salvini	...	*	*										
—— yucatanicus	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to Yucatan.
—— saturatus	...	...	...	...	...	...	...	*	*				
Phalænoptilus nuttalli	*	...	*										
Otophanes macleodi	...	*	*	...	...	...	...	...	...	...	...	.....	Genus peculiar to Mexico.
Stenopsis cayennensis	...	...	...	...	...	...	...	*	*	*			
Nyctidromus albicollis	*	*	*	*	*	*	*	*	*	*			
Chordeiles virginianus	*	*	*	*	*	...	...	...	*	*	*	.....	Bahama Is.
—— texensis	*	*	*	...	*	*	*	*	*				
Nyctibius jamaicensis	..	*	*	...	*	*	...	*	*	*	*		
—— grandis	...	...	...	...	...	...	...	...	*	*			
PICIDÆ.													
Colaptes mexicanus	*	*	*										
—— mexicanoides	...	...	...	...	*	...	*						
—— chrysoides	*	*	...	...	...	...	...	...	...	...	...	.....	Lower California.
Chloronerpes æruginosus	...	*	*										
—— yucatanensis	...	...	*	*	*	*	*	*	*	*			
—— auricularis	...	...	*										
—— godmani	...	...	*										
—— callopterus	...	...	...	...	...	...	...	...	*				
—— simplex	...	...	...	...	...	...	*	*	*				
Melanerpes formicivorus	*	*	*	*	*	*	*	*	*				
—— chrysauchen	...	...	...	...	...	...	...	...	*				
—— pucherani	...	...	*	*	*	*	*	*	*	*			
—— wagleri	...	...	...	...	...	...	...	...	*	*			
—— rubriventris	...	...	*	..	...	*	...	...	...	...	...	.....	Restricted to Yucatan, Honduras, and adjacent islands.
—— aurifrons	*	*	*										
—— hoffmanni	...	..	...	...	...	...	*	*					
—— santacruzi	...	*	*	...	*	*							
—— dubius	...	...	*	*									
—— canescens	...	...	...	...	...	*	...	...	...	...	...	.....	Peculiar to Ruatan I.
—— uropygialis	*	*	*	...	...	...	..	...	...	...	...	.....	Lower California.
—— elegans	...	*	*										
—— hypopolius	...	...	*										
Sphyropicus varius	*	*	*	...	*	*	*	*					
—— nuchalis	*	*	*	...	*								
—— thyroideus	*	*	*										
Dendrocopus harrisi	*	*	*										
—— jardinii	...	...	*	...	*	*	*	*	*				
—— stricklandi	...	...	*										
—— arizonæ	*	*	*										
—— scalaris	*	*	*										
Dendrobates oleagineus	...	...	*										
—— caboti	...	...	*	*	*	...	...	*	*				
—— sanguinolentus	...	...	...	...	...	*	*						
—— ceciliæ	...	...	...	...	...	...	...	...	*	*			
Celeus castaneus	...	...	*	*	*	*	*	*					
—— loricatus	...	...	...	...	...	...	...	*	*	*			
—— immaculatus	...	...	...	...	...	...	...	...	*				
Campophilus imperialis	...	*	*										
—— guatemalensis	...	*	*	*	*	*	*	*	*				
—— malherbii	...	...	...	...	...	...	...	...	*	*			
—— splendens	...	...	...	...	...	...	...	...	*	*			
Ceophlœus scapularis	...	*	*	*	*	*	*	*?					
—— lineatus	...	...	...	...	...	...	...	...	*	*			
Picumnus olivaceus	...	...	...	...	...	*	...	*	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
MOMOTIDÆ.													
Momotus lessoni	...	...	*	*	*	*	*	*	*				
—— cæruleiceps	...	*	*										
—— subrufescens	...	...	...	...	...	...	...	...	*	*			
—— mexicanus	...	*	*										
—— castaneiceps	...	...	...	...	*								
Baryphthengus martii	...	...	...	...	...	...	*	*	*	*			
Eumomota superciliaris	...	...	*	...	*	*	*	*	*				
Prionornis platyrhynchus	...	...	...	...	...	...	*	*	*	*			
—— carinatus	...	...	...	*	*	*	*	*					
Aspatha gularis	...	...	...	...	*	...	...	...	...	...	...	.....	Genus peculiar to Guatemala.
Hylomanes momotula	...	...	*	*	*	...	...	...	...	...	...	.....	Genus peculiar to Central America.
ALCEDINIDÆ.													
Ceryle alcyon	*	*	*	*	*	*	*	*	*	*	*		
—— torquata	...	*	*	*	*	*	*	*	*	*			
—— amazona	..	*	*	*	*	*	*	*	*	*			
—— septentrionalis	*	*	*	*	*	*	*	*	*				
—— inda	...	...	...	...	...	...	*	...	*	*			
—— superciliosa	..	...	*	...	*	*	*	*	*	*			
TROGONIDÆ.													
Pharomacrus mocinno	...	...	...	...	*	*	*	*	*				
Euptilotis neoxenus	...	*	...	...	...	...	...	..	...	...	...	.....	Genus peculiar to Northern Mexico.
Trogon mexicanus	...	...	*	..	*								
—— elegans	...	...	...	...	*	*	*	*					
—— ambiguus	*	*	*										
—— puella	...	...	*	*	*	...	*	*	*				
—— atricollis	...	...	...	...	...	*	*	*	*	*			
—— chionurus	...	...	...	...	...	...	...	...	*	*			
—— bairdi	...	...	...	...	...	...	...	*	*				
—— citreolus	...	*	*										
—— melanocephalus	...	*	*	*	*	*	*	*					
—— caligatus	...	*	*	...	*	*	*	*	*	*			
—— chrysomelas	...	...	...	...	...	...	*						
—— macrurus	...	...	...	...	...	...	...	...	*	*			
—— massena	...	...	*	*	*	*	*	*	*				
—— clathratus	...	...	...	...	...	...	...	*	*				
GALBULIDÆ.													
Galbula melanogenia	...	...	*	*	*	*	*	*	*	*			
Jacamerops aurea	...	...	...	...	...	...	...	*	*	*			
BUCCONIDÆ.													
Bucco dysoni	...	...	*	*	*	*	*	*	*	*			
—— pectoralis	...	...	...	...	...	...	...	...	*	*			
—— subtectus	...	...	...	...	...	...	...	...	*	*			
—— ruficollis	...	...	...	...	...	...	...	...	*	*			
—— fulvidus	...	...	...	...	...	...	...	...	*	*			
Malacoptila panamensis	...	...	...	...	...	...	...	*	*	*			
—— inornata	...	...	...	*	*	...	*						
Nonnula frontalis	...	...	...	...	...	...	...	...	*	*			
Monasa grandior	...	...	...	...	...	...	*	*					
—— pallescens	...	...	...	...	...	...	...	...	*	*			
CUCULIDÆ.													
Coccyzus minor	*	*	*	...	...	*	*	*	*	*	*	.....	Swan I.
—— americanus	*	*	*	...	*	*	*	*	*	*	*	....	Swan I.
—— erythrophthalmus	*	...	*	...	*	...	...	*	*	*	*		
Piaya cayana	...	*	*	*	*	*	*	*	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
CUCULIDÆ (*contin.*).													
Piaya mexicana	...	*	*										
—— minuta	...	...	...	...	...	...	...	...	*	*			
Neomorphus salvini	...	...	...	...	...	...	*	...	*	*			
Geococcyx californianus	*	*	*										
—— affinis	...	*	*	...	*	...	*						
Morococcyx erythropygus	...	*	*	...	*	...	*	*					
Diplopterus nævius	...	...	*	...	*	*	*	*	*	*			
Dromococcyx phasianellus	...	...	*	...	*	*	...	*	*	*			
Crotophaga major	...	...	...	...	...	...	...	...	*	*			[the islands off the east coast.
—— ani	*	...	*	...	...	*	...	...	*	*	*	.....	Not on mainland of Mexico and Honduras, but on
—— sulcirostris	*	*	*	*	*	*	*	*	*	*	...	.....	Lower California.
CAPITONIDÆ.													
Capito maculicoronatus	...	...	...	...	...	...	...	...	*	*			
—— salvini	...	...	...	...	...	...	...	*	*				
Tetragonops frantzii	...	...	...	...	...	...	...	*	*				
RHAMPHASTIDÆ.													
Rhamphastos carinatus	...	...	*	*	*	*							
—— brevicarinatus	...	...	...	...	...	...	*	*	*	*			
—— tocard	...	...	...	...	...	...	*	*	*	*			
Pteroglossus torquatus	...	...	*	*	*	*	*	*	*	*			
—— frantzii	...	...	...	...	...	...	...	*	*				
—— sanguineus	...	...	...	...	...	...	...	...	*				
Selenidera spectabilis	...	...	...	...	...	...	*	*	*				
Aulacorhamphus prasinus	...	...	*	*	*	*							
—— wagleri	...	...	*										
—— cæruleigularis	...	...	...	...	...	...	...	*	*				
PSITTACIDÆ.													
Ara ararauna	...	...	...	...	...	...	...	...	*	*			
—— macao	...	*	*	...	*	*	*	*	*	*			
—— chloroptera	...	...	...	...	...	...	...	...	*	*			
—— militaris	...	*	*	...	...	...	...	...	...	*			
—— ambigua	...	...	...	...	...	...	*	*	*	*			
—— severa	...	...	...	...	...	...	...	...	*	*			
Rhynchopsittacus pachyrhynchus	*	*	*										
Conurus finschi	...	...	...	...	...	...	*	*	*				
—— holochlorus	...	*	*	...	*	*	*						
—— rubritorquis	...	...	...	...	...	*	*						
—— brevipes	...	*	...	...	...	...	...	...	...	...	...	.....	Peculiar to Socorro I.
—— aztec	...	*	*	*	*	*	*	*					
—— ocularis	...	...	...	...	...	...	...	...	*				
—— canicularis	...	*	*	...	*	*	*	*					
Pyrrhura hoffmanni	...	...	...	...	...	...	...	*	*				
Bolborhynchus lineolatus	...	...	*	...	*	...	...	*	*	*			
Psittacula cyanopygia	...	*	*										
Brotogerys jugularis	...	...	*	...	...	*	*	*	*	*			
Chrysotis guatemalæ	...	...	*	...	*	*							
—— virenticeps	...	...	...	...	...	...	...	*	*				
—— inornata	...	...	...	...	...	...	...	...	*	*			
—— panamensis	...	...	...	...	...	...	...	...	*	*			
—— auropalliata	...	...	*	...	*	*	*	*					
—— levaillanti	...	*	*	*	...	*							
—— finschi	...	*	*										
—— viridigena	...	*	*										
—— autumnalis	...	*	*	*	*	*							
—— salvini	...	...	...	...	...	...	*	*	*	*			
—— albifrons	...	*	*	...	*	*	*	*					
—— xantholora	...	...	*	*									
Pionus menstruus	...	...	...	...	...	...	...	...	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. II. (*contin.*).													
PSITTACIDÆ (*contin.*).													
Pionus senilis	...	...	*	*	*	*	*	*					
Pionopsittacus hæmatotis	...	...	*	*	*	*	...	*	*				
—— coccineicollaris	...	...	...	...	...	...	...	...	*				
Vol. III.													
STRIGIDÆ.													
Strix perlata	*	*	*	...	*	*	*	*	*	*			
ASIONIDÆ.													
Asio wilsonianus	*	*	*										
—— clamator	...	...	...	...	...	...	...	...	*	*			
—— stygius	...	...	*	...	...	...	*	...	...	*	*		
—— accipitrinus	*	...	*	...	*	...	...	...	...	*	*	Europe, Asia, &c.	Chile, Falkland Is.
Syrnium sartorii	...	*	*										
—— fulvescens	...	...	†	...	*								
—— occidentale	*	...	*										
Nyctala acadica	*	...	*	...	*								
Bubo virginianus	*	*	*	...	*	...	*	*	*				
Lophostrix stricklandi	...	...	*	...	*	...	...	*	*				
Scops trichopsis	...	*	*	...	*	*?							
—— maccalli	*	*											
—— cineraceus	*	*?											
—— vinaceus	...	*											
—— cooperi	...	...	*	...	...	*	*	*					
—— guatemalæ	...	...	*	...	*	...	...	*	*	*			
—— brasilianus	...	...	...	...	...	...	...	*	...	*			
—— hastatus	...	*	*										
—— barbarus	...	...	...	...	*								
—— flammeola	*	...	*	...	*								
—— nudipes	...	...	...	...	...	...	...	*	*	*			
Ciccaba nigrolineata	...	...	*	*	*	...	*	*	*	*			
—— perspicillata	...	...	*	*	*	*	*	*	*	*			
—— virgata	...	*	*	*	*	...	*	*	*	*			
—— squamulata	...	*	*										
Speotyto cunicularia	*	*	*	...	*	...	...	...	...	*			
Glaucidium phalænoides	*	*	*	*	*	...	*	*	*	*			
—— gnoma	...	*	*	...	...	*							
—— griseiceps	...	...	...	*	*	...	...	...	*				
—— jardinii	...	...	...	...	...	...	...	*	...	*			
Micropallas whitneyi	*	...	*	...	...	...	...	...	...	...	...	.....	Lower California.
—— graysoni	...	*	...	...	...	...	...	...	...	...	...	.....	Peculiar to Socorro.
PANDIONIDÆ.													
Pandion haliaetus	*	*	*	*	*	*	*	...	*	*	...	Europe and Asia.	
FALCONIDÆ.													
Circus hudsonius	*	*	*	...	*	...	*	*	*	...	*	.....	Bahama Is.
Astur atricapillus	*	*											
Accipiter cooperi	*	*	*	...	*	...	...	*					
—— bicolor	...	...	*	...	*	*	*	*	*	*			
—— velox	*	*	*	...	*	...	*	*	*				
—— chionogaster	...	...	...	...	*	*	*						
—— tinus	...	...	...	...	...	...	*	...	*	*			
Geranospizias niger	...	*	*	*	*	*	*	*	*				
Archibuteo ferrugineus	*	*											
Buteo harrisi	*	*	*	...	*	...	*	*	*	*			
—— albicaudatus	*	...	*	...	*	...	...	*	*	*			Lower California.
—— abbreviatus	*	*	*	...	*	...	...	*	...	*	...	.....	Bahama Is.
—— borealis	*	*	*	*	*	...	*	*	*	*	*	.....	Socorro I. only.
—— socorroensis	...	*	...	...	...	...	...	...	...	...	...	.....	Tres Marias Is. only.
—— fumosus	...	*	...	...	...	...	...	...	...	...	...	.....	

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*),													
FALCONIDÆ (*contin.*).													
Buteo harlani	*	...	*										
—— lineatus	*	...	*	...	...	...	...	...	...	...	...	.....	Lower California.
—— swainsoni	*	*	*	...	*	...	...	*	...	*	...	.....	Masafuera I.
—— latissimus	*	*	*	...	...	*	*	*	*	*	*		
—— brachyurus	*	*	*	...	*	...	*	*	*	*	*		
Asturina nitida	...	...	...	...	...	...	...	...	*	*			
—— plagiata	*	*	*	...	*	*	*	*					
Rupornis ruficauda	...	*	*	*	*	*	*	*	*	...	...	.....	Pearl Is.
Urubitinga zonura	...	...	...	...	...	...	...	*	*	*			
—— ridgwayi	...	*	*	*	*	*	*	*					
—— anthracina	*	*	*	...	*	*	*	*	*	*	*		
Leucopternis ghiesbreghti	...	...	*	*	*	*	*	*	*				
—— princeps	...	...	...	...	...	...	...	*					
—— plumbea	...	...	...	...	...	...	...	...	*	*			
—— semiplumbea	...	...	...	...	...	*	...	*	*	*			
Busarellus nigricollis	...	*	*	...	*	...	*	*	*	*			
Heterospizias meridionalis	...	...	*	...	...	...	...	*	*	*			
Harpyhaliaetus solitarius	...	...	*	...	*	...	...	...	*	*			
Morphnus guianensis	...	...	...	...	...	...	...	...	*	*			
Thrasaetus harpyia	*	...	*	...	*	...	...	*	*				
Aquila chrysaetus	*	*	*	...	...	...	...	...	...	...	...	Europe and Northern Asia.	
Spizaetus ornatus	...	...	*	*	*	*	*	*	*	*			
—— tyrannus	...	...	*	...	*	*	*	*	*	*			
Spiziastur melanoleucus	...	...	*	...	*	...	*	*	*	*			
Elanoides furcatus	*	...	*	*	*	*	*	*	*	*	*		
Elanus leucurus	*	...	*	...	*	...	...	...	...	*			
Gampsonyx swainsoni	...	...	...	...	...	...	*	...	...	*			
Rostrhamus sociabilis	*	...	*	...	*	...	*	*	...	*			
Leptodon cayennensis	...	*	*	*	*	*	*	*	*	*			
Regerhinus uncinatus	...	...	*	...	*	...	...	*	*	*			
—— megarhynchus	...	...	*	...	...	...	...	...	...	*			
Ictinia plumbea	...	*	*	*	*	*	*	...	*	*			
—— mississippiensis	*	...	...	...	*								
Harpagus fasciatus	...	...	*	...	*	...	*	*	*				
Micrastur melanoleucus	...	*	*	...	*	*	*	*	*	*			
—— amaurus	...	...	...	...	...	...	...	...	*				
—— mirandollei	...	...	...	...	...	...	...	*	*	*			
—— guerilla	...	...	*	*	*	*	*	*	*	*			
Herpetotheres cachinnans	...	*	*	*	*	*	*	*	*	*			
Falco peregrinus	*	*	*	...	*	*	...	...	*	*	..	Europe and Asia.	Swan I.
—— mexicanus	*	*	*										
—— rufigularis	...	*	*	...	*	*	*	*	*	*			
—— deiroleucus	...	...	...	...	*	...	*	*	*	*			
—— fusco-cærulescens	*	*	*	...	*	...	...	...	...	*			
—— columbarius	*	*	*	...	...	*	*	*	*	*	*	.....	Swan I.
—— richardsoni	*	*											
Tinnunculus sparverius	*	*	*	*	*	*	*	*	*				
Polyborus cheriway	*	*	*	...	*	*	*	*	...	*	...	.....	Lower California.
—— pallidus	...	*	...	...	...	...	...	...	...	...	...	.....	Tres Marias Is. only.
Milvago chimachima	..	...	...	...	...	...	...	...	*	*			
Ibycter americanus	...	...	...	...	*	*	*	*	*	*			
SARCORHAMPHIDÆ.													
Gypagus papa	...	...	*	...	*	*	*	*	*	*			
Catharista atrata	*	*	*	...	*	*	*	*	*	*			
Cathartes aura	*	*	*	...	*	*	*	*	*	*	*		
PHAETHONTIDÆ.													
Phaethon americanus	*	...	...	...	...	...	...	...	...	...	*	.....	Atlantic coast of Central America; Bahama Is.
—— æthereus	*	*	*	...	...	*	...	*	...	...	*	.....	Lower California; Revillagigedo Is.

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*).													
FREGATIDÆ.													
Fregata aquila	*	*	*	*	*	*	*	*	*	*	*	.....	Revillagigedo Is.
PELECANIDÆ.													
Pelecanus fuscus	*	*	*	*	*	*	*	*	*	*	*	.....	Revillagigedo Is.; Galapago Is.
—— erythrorhynchus	*	*	*	...	*								
SULIDÆ.													
Sula bassana	*	...	*?	...	...	...	...	...	...	...	...	Coast of W. Europe, N. Africa, Madeira, and Canaries.	Gulf of Mexico.
—— cyanops	*	...	...	...	...	...	...	...	...	...	*	Indian Ocean.	Revillagigedo Is., S. Atlantic, and S. Pacific.
—— piscator	*	...	...	*	...	*	*	...	...	...	*	.....	Swan I.
—— websteri	...	*	...	...	...	...	...	...	...	...	...	.....	Revillagigedo and Galapago Is. [Galapagos.
—— nebouxi	...	*	...	...	...	...	...	...	...	*	...	.....	Islands in Gulf of California, Revillagigedos and
—— leucogastra	...	*	...	*	...	*	*	*	*	...	...	Indian Ocean.	Swan I., Pearl Is.
—— brewsteri	*	*	...	...	...	...	...	...	...	...	...	.....	Revillagigedo Is., Lower California.
PHALACROCORACIDÆ.													
Phalacrocorax pelagicus	*	*	...	...	...	...	...	...	...	...	...	Pacific coasts of N. Asia.	Lower California.
—— auritus	*	...	*	*									
—— cincinnatus	*	...	...	...	...	...	...	...	...	...	...	.....	Revillagigedo Is.
—— vigua	*	...	*	...	*	...	*	*	*	*			
—— mexicanus	*	*	*	...	*								
PLOTIDÆ.													
Plotus anhinga	*	*	*	...	*	*	*	*	*	*			
ARDEIDÆ.													
Ardea herodias	*	*	*	...	*	...	*	*	*	*	*	.....	Galapago Is.
—— egretta	*	*	*	...	*	...	*	*	*	*	*		
—— candidissima	*	*	*	*	*	*	*	*	*	*			
—— tricolor	*	*	*	*	*	...	*	*	*	*	*		
—— cærulea	*	*	*	*	*	*	*	*	*	*	*		
—— rufa	*	...	*	...	*	...	...	...	...	...	*	.....	Lower California.
—— virescens	*	*	*	*	*	*	*	*	*	*	*	.....	Pearl Is., Lower California.
—— agami	...	...	*	*	*	...	...	*	*	*	...	.....	Pearl Is.
Nycticorax griseus	*	*	*	...	*	*	*	*	...	*	*	Temp. Europe, Africa, Asia.	
Nyctanassa violacea	*	*	*	...	*	*	*	*	*	*	*	.....	Revillagigedo Is., Pearl Is., Lower California.
Pilherodius pileatus	...	...	...	...	...	...	...	...	*	*			
Tigrisoma lineatum	...	...	...	...	...	...	...	...	*	*			
—— excellens	...	...	...	...	...	*	*	...	*?				
—— cabanisi	...	*	*	*	*	*	*	*	*				
Ardetta exilis	*	*	*	...	*	...	...	...	*	...	*		
Botaurus lentiginosus	*	*	*	...	*	...	...	...	*				
—— pinnatus	...	...	...	...	...	..	*?	...	...	*			
CANCROMIDÆ.													
Cancroma zeledoni	...	*	*	*	*	...	*	*	*				
CICONIIDÆ.													
Mycteria americana	*	...	...	...	*	...	*	*	...	*			
Tantalus loculator	*	*	*	...	*	...	*	*	*	*			
PLATALEIDÆ.													
Platalea ajaja	*	*	*	...	*	...	*	*	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*).													
IBIDIDÆ.													
Eudocimus albus	*	*	*	*	*	...	*	*	...	*	*	.....	Lower California.
—— ruber	*	*?	...	...	...	...	...	...	...	*	*		
Plegadis guarauna	*	*	*	...	...	...	...	...	...	*	*	.....	Hawaiian Is.
Harpiprion cayennensis	...	...	...	...	...	...	...	...	*	*			
PHŒNICOPTERIDÆ.													
Phœnicopterus ruber	*	...	*	...	...	...	...	...	...	*	...	.....	Galapago Is., Bahama Is.
ANATIDÆ.													
Cairina moschata	...	*	*	*	*	*	*	*	*	*			
Æx sponsa	*	*	*	...	...	...	...	...	...	...	*	.....	Bermuda Is.
Chen hyperboreus	*	...	*	...	...	...	...	...	...	...	...	N.E. Asia and N. Europe.	
Anser gambeli	*	*	*	...	...	...	...	...	...	...	*	E. Asia.	Lower California.
Branta canadensis	*	*	*									[Burmah.	
Dendrocycna fulva	*	*	*	...	...	...	...	...	...	*	...	Africa, Madagascar, India,	
—— autumnalis	*	*	*	...	*	*	*	*	*	*	*		
Anas boscas	*	*	*	...	...	...	...	...	*	...	*	Europe, Asia, Africa.	
—— diazi	...	...	*										
—— aberti	...	*	*										
Chaulelasmus streperus	*	*	*	...	...	...	...	...	...	...	*	Europe and Asia.	
Mareca americana	*	*	*	...	*	...	...	...	...	*	*	Europe.	
Nettium carolinense	*	*	*	...	...	*	...	...	...	...	*	Europe.	
Dafila acuta	*	*	*	*	*	...	*	*	*	...	*	Europe, Asia, N. Africa.	
Querquedula discors	*	*	*	*	*	*	*	*	*	*	*	.....	Lower California.
—— cyanoptera	*	*	*	..	...	...	...	...	...	*	...	.....	Falkland Is.
Spatula clypeata	*	*	*	...	*	...	...	*	...	*	*	Europe, Asia, N. Africa.	
Nyroca americana	*	*	*										
—— vallisneria	*	*	*	...	*	...	...	...	...	...	*		
Fuligula marila	*	*	...	...	...	...	...	...	...	...	...	Europe and Asia.	
—— affinis	*	*	*	...	*	...	...	*	*				
—— collaris	*	*	*	...	*	...	...	...	...	...	*		
Clangula glaucion	*	*	...	...	...	...	...	...	...	...	*	Europe and Asia.	
—— albeola	*	*	*	...	...	...	...	...	...	..	*	Europe.	
Nomonyx dominicus	*	...	*	...	*	...	...	...	*	*	*		
Erismatura jamaicensis	*	*	*	...	*	...	...	*	...	*	*		
Merganser americanus	*	*	...	...	...	...	...	...	...	...	...	.....	Bermuda Is.
Lophodytes cucullatus	*	*	*	...	...	...	...	...	...	...	...	Europe.	
COLUMBIDÆ.													
Columba leucocephala	*	...	*	*	...	*	...	...	...	...	*	.....	Bahama Is., Swan I.
—— speciosa	...	...	*	...	*	...	*	*	*	*			
—— flavirostris	*	*	*	...	*	*	*	*					
—— madrensis	...	*	...	...	...	...	...	...	...	...	...	.....	Peculiar to Tres Marias Is.
—— rufina	...	...	...	*	*	*	*	*	*	*			
—— fasciata	*	*	*	...	*	...	*						
—— crissalis	...	...	...	...	...	...	...	*	*				
—— nigrirostris	...	...	*	*	*	*	*	*	*				
—— subvinacea	...	...	...	...	...	...	...	*	*	*			
Ectopistes migratorius	*	...	*										
PERISTERIDÆ.													
Zenaidura carolinensis	*	*	*	...	*	*	*	*	*	...	*		
—— clarionensis	...	*	...	...	...	...	...	...	...	..	...	.....	Peculiar to Clarion I. in the Revillagigedo group.
—— graysoni	...	*	..	...	...	...	...	...	...	...	...	.....	Peculiar to Socorro I. in the Revillagigedo group.
Zenaida yucatanensis	...	...	*	...	...	...	...	...	...	...	...	.....	Peculiar to coast of Yucatan and adjacent islands.
Melopelia leucoptera	*	*	*	...	*	*	*	*	...	...	*	.....	Lower California.
Scardafella inca	*	*	*	...	*	*	*	...	...	...	...	.....	Lower California.
Chamæpelia passerina	*	*	*	*	*	...	*	*	*	*	*	.....	Lower California.
—— socorroensis	...	*	...	...	..	...	...	...	...	...	...	.....	Peculiar to Socorro I. in the Revillagigedo group.
—— minuta	...	...	*	...	*	...	...	...	*	*			

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*).													
PERISTERIDÆ (*contin.*).													
Chamæpelia rufipennis		*	*	*	*	*	*	*	*				Pearl Is.
Peristera cinerea		*	*	*	*	*	*	*	*	*			
—— mondetoura			*		*			*	*	*			
Leptoptila brachyptera		*	*	*	*	*	*	*					
—— fulviventris			*										Peculiar to Yucatan.
—— capitalis		*											Peculiar to Tres Marias Is.
—— verreauxi									*	*			Pearl Is.
—— gaumeri			*										Peculiar to Yucatan and adjacent islands.
—— plumbeiceps		*	*	*	*	*							
—— cassini							*	*	*	*			
—— vinaceiventris						*	*						
—— cerviniventris				*	*								
—— rufinucha								*	*				
—— battyi									*				Peculiar to Coiba I.
Geotrygon albiventer								*	*				
—— montana	*		*	*	*		*	*	*	*	*		
—— lawrencii									*				
—— costaricensis								*					
—— veraguensis								*	*				
—— albifacies			*		*	*	*						
—— chiriquensis								*	*				
CRACIDÆ.													
Crax globicera		*	*		*	*							
—— panamensis							*	*	*				
—— chapmani			*										Peculiar to Yucatan.
Oreophasis derbianus					*								Peculiar to high mountains of Western Guatemala.
Penelope purpurascens		*	*		*	*							
—— cristata							*	*	*	*			[mala, and Nicaragua.
Penelopina nigra			*		*		*						Peculiar to the high mountains of Chiapas, Guate-
Chamæpetes unicolor								*	*				
Ortalis wagleri		*	*										
—— poliocephala			*										
—— vetula	*	*	*	*	*	*							
—— leucogastra					*	*	*						
—— cinereiceps							*	*	*				
—— struthopus									*				Peculiar to the Pearl Is.
MELEAGRIDÆ.													
Meleagris gallopavo	*	*											Genus peculiar to N. and Centr. America.
—— ocellata			*	*	*								
PHASIANIDÆ.													
Dendrortyx macrurus			*										
—— barbatus			*										
—— leucophrys					*			*					
—— hypospodius								*					
Callipepla squamata	*	*	*										
Lophortyx gambeli	*	*											
—— douglasi		*	*										
Philortyx fasciatus			*										
Eupsychortyx leucopogon										*	*		
—— leylandi						*	*	*					
—— nigrogularis			*	*		*	*						
—— hypoleucus					*								
Ortyx texanus	*	*	*										
—— pectoralis			*										
—— graysoni		*	*										
—— godmani			*										
—— ridgwayi	*	*											
—— insignis			*		*								

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*).													
PHASIANIDÆ (*contin.*).													
Ortyx coyolcos			*										
—— atriceps			*										
—— salvini			*										
Cyrtonyx montezumæ	*	*	*										
—— sallæi			*										
—— ocellatus			*		*	*							
Dactylortyx thoracicus			*		*	*							
Odontophorus marmoratus								*	*	*			
—— melanotis							*	*	*				
—— leucolæmus								*	*				
—— guttatus			*	*	*		*	*	*				
—— veraguensis								*	*				
Rhynchortyx spodiostethus							*		*				
—— cinctus									*				
RALLIDÆ.													
Rallus tenuirostris		*	*										
—— virginianus	*	*	*		*						*		
Aramides axillaris		*	*	*						*			
—— chiricote								*	*	*			
—— albiventris		*	*	*	*	*		*					
—— plumbeicollis						*	*	*					
Amaurolimnas concolor					*	*	*			*	*		
Porzana carolina	*	*	*	*	*			*	*	*	*	Europe (accidental)	Swan I.
Creciscus jamaicensis	*				*						*		
—— exilis						*	*			*			
—— albigularis								*	*	*			
—— cinereiceps							*	*					
—— ruber			*	*	*								
Gallinula galeata	*	*	*		*	*	*	*		*	*		
Porphyriola martinica	*	*	*	*	*	*		*	*	*	*		
Fulica americana	*	*	*		*	*	*	*	*		*		
HELIORNITHIDÆ.													
Heliornis fulica			*	*	*	*	*	*	*	*			
ARAMIDÆ.													
Aramus pictus	*	*	*	*		*	*	*			*		
EURYPYGIDÆ.													
Eurypyga major					*			*	*	*			
GRUIDÆ.													
Grus canadensis	*	*	*										
—— americana	*	*	*										
ŒDICNEMIDÆ.													
Œdicnemus bistriatus			*		*	*	*	*	*	*			
PARRIDÆ.													
Parra melanopygia									*	*			
—— nigra									*	*			
Asarcia variabilis	*	*	*	*	*	*	*	*	*		*		

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costa R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*).													
CHARADRIIDÆ.													
Arenaria interpres	*	...	*	*	*	...	...	*	*	*	*	Europe and Asia.	
Hæmatopus palliatus	*	*	*	...	*	...	...	*	*	*	*		
—— frazari	*	*	*	...	...	...	...	...	...	...	...	.....	Lower California.
Hoploxypterus cayanus	...	...	...	...	...	*	...	...	...	*			
Squatarola helvetica	*	*	*	...	*	...	...	...	...	...	...	Europe and Siberia.	
Charadrius dominicus	*	...	*	...	*	...	...	*	...	*	*		
Aphriza virgata	*	...	*	...	...	...	...	...	...	*			
Ochthodromus wilsoni	*	*	*	*	*	...	...	...	...	*	*		
Oxyechus vociferus	*	*	*	*	*	*	*	*	*	*	*	.....	Bermuda Is.
Ægialeus semipalmatus	*	*	*	...	*	...	...	*	...	*	*		
Ægialitis collaris	...	...	*	...	*	...	*	*	*	*	*		
—— nivosa	*	*	*	...	...	...	...	*	...	*			
Himantopus mexicanus	*	*	*	...	*	*	*	*	*	*	*	.....	Galapago Is.
Recurvirostra americana	*	*	*	...	*								
Numenius longirostris	*	*	*	...	*	...	...	...	...	...	*		
—— hudsonicus	*	*	*	...	*	*	...	*	...	*	...	.....	Galapago Is.
Limosa fedoa	*	*	*	*	*	...	...	...	...	...	*		
Macrorhamphus griseus	*	*	*	...	*	...	...	*	*	*	*	Europe.	
Micropalama himantopus	*	*	*	...	*	...	*	...	...	*	*		
Symphemia semipalmata	*	*	*	...	...	*	...	...	...	*	*	Europe	Bahama Is.
Totanus melanoleucus	*	*	*	...	*	...	*	*	*	*	*		
—— flavipes	*	*	*	...	*	...	*	*	*	*	*	.....	Swan I.
Helodromas solitarius	*	*	*	*	*	*	*	*	*	*	*		
Heteractitis incana	*	...	*	...	...	...	...	...	...	...	...	Oceania and N.E.Australia.	
Tringoides macularia	*	*	*	...	*	*	*	*	*	*	*	Europe.	
Bartramia longicauda	*	...	*	*	*	*	*	*	*	*			
Ereunetes pusillus	*	*	*	...	*	...	...	...	*	*	...	.....	Swan I.
Tringites subruficollis	*	*	*	...	...	*	...	*	...	*	...	Europe and Siberia.	
Calidris arenaria	*	*	*	*	*	...	...	...	...	*	...	Europe, Asia, Africa, Australia.	Galapago Is., Hawaiian Is.
Limonites minutilla	*	*	*	...	*	...	*	*	*	*	...	Europe	Galapago Is.
Heteropygia maculata	*	*	*	...	*	...	...	*	*	*	*	Europe	Swan I.
—— bairdi	*	*	*	...	...	...	...	...	...	*	...	S.W. Africa.	
—— fuscicollis	*	...	*	...	...	...	*	...	*	*	*	.....	Falkland Is.
Gallinago delicata	*	*	*	*	*	*	*	*	*	*	*		
Phalaropus hyperboreus	*	...	*	...	*	...	...	*	...	...	...	Europe, Asia.	
Steganopus tricolor	*	*	*	...	*								
LARIDÆ.													
Hydrochelidon surinamensis	*	*	*	*	*	*	...	*	*	*		[Australia.	
Gelochelidon anglica	*	*	*	...	*	...	...	...	...	*	...	Europe, Asia, Africa,	
Hydroprogne caspia	*	*	...	...	...	...	...	...	...	...	...	Europe, Asia, Africa,	
Sterna forsteri	*	*	*	...	*	...	...	...	...	*		[Malayasia.	
—— fluviatilis	*	...	...	...	*	...	...	...	...	*	*	Europe, Asia, Africa.	
—— dougalli	*	...	*	*	...	...	...	...	...	*	*	Europe, Asia, Africa, Australia.	
—— cantiaca	*	...	*	*	*	...	...	...	...	...	...	Europe, Asia, Africa.	
—— maxima	*	*	*	*	*	*	...	*	...	*	*	W. Africa.	
—— elegans	*	*	*	...	...	*	...	...	...	*			
—— anæstheta	*	...	...	*	...	...	...	*	...	...	*	S. Atlantic and Indian Is. and coasts generally.	Pacific Is.
—— fuliginosa	*	*	...	*	...	*	*	...	*	...	...	Tropical Oceanic Islands generally.	Revillagigedo Is.
—— antillarum	*	*	*	*	*	...	...	...	...	*	*	W. Africa.	
Anous stolidus	*	...	*	*	...	*	...	...	...	...	*	Tropical Seas, &c.	
—— pileatus	...	*	...	...	*	...	...	...	...	...	...	.....	Revillagigedo Is. Pacific Ocean generally.
Micranous leucocapillus	...	...	...	*	...	...	...	...	...	...	...	Atlantic Ocean.	Pacific Ocean.
Rhynchops nigra	*	*	*	...	*	...	*	...	...	*	*		
—— melanura	...	...	*	...	...	...	...	...	...	*	...	.....	Cozumel I.
Larus philadelphia	*	*	*										
—— franklini	*	*	*	...	*	...	...	...	*	*	*		
—— atricilla	*	*	*	*	*	...	...	*	...	*	*		
—— heermanni	*	*	...	...	*								

Geographical Distribution of the Species (*continued*).

	N. Am.	N. Mex.	S. Mex.	B. Hond.	Guat.	Hond. & Salv.	Nicar.	Costr. R.	Pan.	S. Am.	W. Ind.	Old World, &c.	General Remarks.
Vol. III. (*contin.*).													
LARIDÆ (*contin.*).													
Larus argentatus	*	*	*								*	Europe.	
—— delawarensis	*	*	*								*		Bermuda Is.
—— californicus	*		*										
PROCELLARIIDÆ.													
Procellaria tethys													West coast of Central America and Galapago Is.
Halocyptena microsoma	*	*							*				Lower California, San Benito I.
Oceanodroma kædingi		*											Revillagigedo Is.
—— melania	*	*	*										Lower California, San Benito I.
—— socorroensis	*	*											Revillagigedo Is., San Benito I.
PUFFINIDÆ.													
Puffinus cuneatus	*	*										Krusenstern I.	[&c. Revillagigedo Is., Hawaiian Is., Lower California,
—— auricularis	*	*											Revillagigedo Is.., Lower California.
—— auduboni	*												Gulf of Mexico, Bahama Is.
Priocella glacialoides	*	*											Southern Seas.
DIOMEDEIDÆ.													
Diomedea nigripes		*											Revillagigedo Is., N. Pacific.
Thalassogeron culminatus									*				Southern Seas.
COLYMBIDÆ.													
Colymbus glacialis	*		*									Europe, Asia.	Lower California.
PODICIPEDIDÆ.													
Æchmophorus occidentalis	*	*	*										
Podicipes californicus	*	*	*		*								
—— dominicus	*	*	*		*	*		*	*	*			Lower California.
Podilymbus podicipes	*	*	*		*				*	*			
ALCIDÆ.													
Brachyrhamphus brevirostris		*										Aleutian Is., Japan, &c.	North Pacific.
TINAMIDÆ.													
Tinamus robustus			*	*	*	*	*						
—— fuscipennis							*	*	*	*			
—— castaneiceps								*	*	*			
Nothocercus frantzii								*	*				
Crypturus meserythrus			*		*	*	*	*	*	*			Pearl Is.
—— cinnamomeus			*		*	*	*	*					
—— goldmani			*										
—— boucardi			*	*	*	*	*	*					
—— mexicanus		*	*										
—— inornatus			*										
—— occidentalis		*											

LIST OF PLATES.

	Plate.	Fig.	Page.
VOL. I.			
TURDIDÆ.			
Catharus griseiceps	I.	2	6
—— gracilirostris	I.	1	6
—— mexicanus	II.	1	6
—— dryas	II.	2	7
Turdus flavirostris	III.	1	21
—— nigrescens	IV.	..	25
Melanoptila glabrirostris	III.	2	27
SYLVIIDÆ.			
Polioptila albiloris, ♂	V.	1	53
—— ——, ♀	V.	2	53
TROGLODYTIDÆ.			
Microcerculus philomela	V.	3	76
—— luscinia	V.	4	77
Thryophilus thoracicus	VI.	1, 2	86
—— semibadius	VI.	3	88
Thryothorus atrigularis	VI.	4	91
—— felix	VII.	1	93
—— albinucha	VII.	2	94
Cistothorus polyglottus*	VII.	3	105
MNIOTILTIDÆ.			
Parula inornata	VIII.	1	120
—— superciliosa	VIII.	2	122
—— gutturalis	VIII.	3	123
Dendrœca decora	X.	1	136
Geothlypis chiriquensis	IX.	1	152
—— caninucha	IX.	2	153
—— poliocephala	IX.	3	154
Ergaticus versicolor	XI.	1	165
Basileuterus melanogenys	X.	3	174
Setophaga torquata	X.	2	183
—— lacrymosa	XI.	2	184

	Plate.	Fig.	Page.
VIREONIDÆ.			
Vireo ochraceus	XII.	1	201
—— pallens	XII.	2	202
—— carmioli	XII.	3	203
Neochloe brevipennis	XIII.	2	205
Hylophilus viridiflavus	XIII.	1	208
AMPELIDÆ.			
Phainoptila melanoxantha	XIV.	..	221
HIRUNDINIDÆ.			
Atticora pileata	XV.	2	230
Tachycineta albilinea†	XV.	1	235
CŒREBIDÆ.			
Diglossa plumbea, ♂	XV. *a*.	1	243
—— ——, ♀	XV. *a*.	2	243
Dacnis viguieri	XV. *a*.	3	246
Certhiola caboti	XV. *a*.	4	251
TANAGRIDÆ.			
Euphonia gracilis	XVI.	3	259
—— luteicapilla	XVI.	1	260
—— fulvicrissa	XVI.	2	264
Calliste florida	XVII.	1	267
Rhamphocœlus passerinii	XVIII.	1	281
—— uropygialis	XVIII.	2	284
Pyranga testacea, ♂	XIX.	1	292
—— ——, ♀	XIX.	2	292
—— erythrocephala	XVII.	2	294
Chlorothraupis carmioli‡	XX.	1	299
Eucometis spodocephala	XX.	2	307
Tachyphonus chrysomelas	XXI.	1	311
—— nitidissimus, ♂	XXI.	2	312
—— ——, ♀	XXI.	3	312
Chlorospingus punctulatus	XXII.	1	316
—— pileatus	XXII.	2	316
—— hypophæus	XXII.	3	317
Buarremon capitalis	XXIII.	1	322
—— tibialis	XXIII.	2	322
Pitylus celæno	XXIV.	..	332

* *Cistothorus elegans* on the Plate. † *Hirundo albilinea* on the Plate. ‡ *Phœnicothraupis carmioli* on the Plate.

	Plate.	Fig.	Page.
Fringillidæ.			
Cyanospiza rositæ, ♂	XXV.	..	362
—— ——, ♀	XXV.	..	362
Haplospiza uniformis	XXVII.	1	366
Amphispiza quinquestriata *	XXVII.	2	368
Zonotrichia vulcani	XXVI.	2	371
Junco alticola	XXVI.	1	374
Spizella pinetorum	XXVII.	3	378
Coturniculus petenicus †	XXVIII.	2	385
Peucæa notosticta	XXVIII.	1	393
Hæmophila rufescens	XXIX.	2	394
—— superciliosa	XXX.	1	395
—— ruficauda	XXX.	2	396
—— humeralis	XXIX.	1	398
Chrysomitris atriceps	XXXI.	1, 2	429
—— xanthogastra	XXXI.	3	430
Icteridæ.			
Gymnostinops guatemozinus ‡	XXXII.	..	439
Icterus auratus	XXXIII.	2	473
—— sclateri	XXXIII.	1	476
Corvidæ.			
Cyanolyca § yucatanica	XXXV.	..	498
—— argentigula	XXXIV.	..	501

Vol. II.

	Plate.	Fig.	Page.
Tyrannidæ.			
Leptotriccus superciliaris	XXXVI.	2	18
Tyrannulus semiflavus	XXXVI.	1	32
Sublegatus arenarum ‖	XXXVI.	3	37
Sirystes albogriseus	XXXVII.	1	47
Myiodynastes hemichrysus	XXXVIII.	1	50
Muscivora mexicana, ♂	XXXIX.	1	53
—— ——, ♀	XXXIX.	2	53
Myiobius capitalis	XL.	1	59
Empidonax albigularis	XL.	2	70
—— atriceps	XL.	3	79
Contopus ochraceus	XXXVIII.	2	84
Myiarchus flammulatus	XXXVII.	2	96
Pipridæ.			
Piprites griseiceps	XLI.	3	107
Chiromachæris aurantiaca, ♂	XLI.	1	115
—— ——, ♀	XLI.	2	115
Cotingidæ.			
Pachyrhamphus cinereiventris	XLIII.	1	127
—— albogriseus, ♂	XLIII.	2	128
—— ——, ♀	XLIII.	3	128
Carpodectes nitidus, ♂	XLII.	..	140
—— ——, ♀	XLII.	..	140
Dendrocolaptidæ.			
Synallaxis pudica	XLIV.	2	149
Siptornis ¶ erythrops	XLV.	1	151
—— rufigenis	XLV.	2	152
Automolus rufobrunneus **	XLVI.	2	154
Philydor fuscipennis	XLVI.	1	161
Sclerurus guatemalensis	XLIV.	1	168
Margarornis rubiginosa	XLVII.	1	170
—— brunnescens	XLVII.	2	170
Dendrornis lacrymosa	XLVIII.	1	182
Xiphorhynchus pusillus	XLVIII.	2	189
Formicariidæ.			
Thamnophilus punctatus	XLIX.	1	198
—— bridgesi	XLIX.	2	199
Thamnistes anabatinus, ♂	L.	1	205
Dysithamnus puncticeps, ♂	L.	2	207
—— ——, ♀	L.	3	207
Myrmelastes intermedius ††, ♂	LI.	2	227
—— ——, ♀	LI.	3	227
Myrmeciza læmosticta	LI.	1	230
Grallaria princeps	LII.	..	241
—— perspicillata	LIII.	2	242
—— dives	LIII.	1	243
Trochilidæ.			
Hemistephania veraguensis	LV.	1	253
Callipharus nigriventris ‡‡, ♂	LVII.	3	270
—— ——, ♀	LVII.	4	270
Hypuroptila melanorrhoa §§, ♂	LV.	2	276
—— ——, ♀	LV.	3	276
Oreopyra calolæma, ♂	LIV.	1	333

* *Zonotrichia quinquestriata* on the Plate.
† *Ammodromus petenicus* on the Plate.
‡ *Ostinops guatemozinus* on the Plate.
§ *Cyanocitta* on the Plate.
‖ *Elainea arenarum* on the Plate.
¶ *Synallaxis* on the Plate.
** *Philydor rufobrunneus* on the Plate.
†† *Myrmeciza immaculata* on the Plate.
‡‡ *Eupheruza nigriventris* on the Plate.
§§ *Chalybura melanorrhoa* on the Plate.

	Plate.	Fig.	Page.
Oreopyra calolæma, ♀	LIV.	2	333
Delattria margarethæ, ♂	LIV. *a.*	1	336
—— ——, ♀	LIV. *a.*	2	336
—— sybillæ, ♂	LIV. *a.*	3	337
—— ——, ♀	LIV. *a.*	4	337
—— hemileuca, ♂	LIV.	3	337
—— ——, ♀	LIV.	4	337
Selasphorus torridus, ♂	LVI.	2	354
—— ——, ♀	LVI.	3	354
—— ardens	LVI.	1	356
Lophornis adorabilis, ♂	LVII.	1	365
—— ——, ♀	LVII.	2	365
Caprimulgidæ.			
Caprimulgus salvini, ♂	LVIII. *b.*	..	387
—— yucatanicus, ♂	LVIII. *a.*	..	388
—— saturatus *, ♂	LVIII.	..	388
Picidæ.			
Chloronerpes auricularis, ♂	LIX. *a.*	3	408
—— godmani, ♂	LIX. *a.*	1	409
—— ——, ♀	LIX. *a.*	2	409
—— callopterus	LIX.	1	409
—— simplex	LIX.	2	410
Melanerpes chrysauchen, ♂	LX.	1	414
—— ——, ♀	LX.	2	414
Vol. III.			
Asionidæ.			
Syrnium fulvescens	LXI.	..	9
Scops trichopsis	LXII.	..	16
Falconidæ.			
Morphnus guianensis	LXIII.	..	88
Micrastur amaurus	LXV.	..	109
—— mirandollei	LXIV.	..	109
Falco deiroleucus	LXVI.	..	117
Peristeridæ.			
Leptoptila plumbeiceps	LXVII.	1	261
—— cassini	LXVIII.	1	262
—— cerviniventris	LXVII.	2	263
—— rufinucha	LXVIII.	2	264
Geotrygon lawrencii	LXIX.	..	266
—— veraguensis †	LXX.	..	267
Cracidæ.			
Chamæpetes unicolor	LXXI.	..	278
Ortalis wagleri	LXXII.	..	279
Phasianidæ.			
Odontophorus melanotis	LXXIII.	..	310
—— leucolæmus	LXXIV.	..	311
Rhynchortyx ‡ spodiostethus	LXXVI.	..	313
—— cinctus	LXXV.	..	313
Rallidæ.			
Aramides axillaris	LXXVII.	..	318
Tinamidæ.			
Nothocercus frantzii §	LXXVIII.	..	452
Crypturus mexicanus, ♂	LXXIX.	..	457
—— ——, ♀	LXXIX.	..	457

* *Antrostomus saturatus* on the Plate.

† *Geotrygon rufiventris* on the Plate.

‡ *Odontophorus* on the Plate.

§ *Nothocercus bonapartii* on the Plate.

ERRATA ET CORRIGENDA.

Page	Line	
4	14	*for* tarsi 0·9 *read* tarsi 1·3.
6	16	*for* tarsi 2·2 *read* tarsi 1·2.
18	32	for *helveolus* read *helvolus*.
20	35	*for* Rotosinapam *read* Totosinapam.
26	9	for *Musicapa* read *Muscipapa*.
26	26	for *Wicklam* read *Wickham*.
40	37	*for* Ariba *read* Arriba.
41	5	
44	14	*for* Temiscaltepec *read* Temascaltepec.
63	38	for *Campylopterus* read *Campylorhynchus*.
78	6	*for* Southern Mexico *read* Eastern Mexico.
87	30	*for* Ariba *read* Arriba.
101	29	for *Thyothorus* read *Thryothorus*.
121	31	after *Hab.* insert "North America,"
123	28	for *vieillotti* read *vieilloti*.
126	30	for *Syvicola* read *Sylvicola*.
137	6	*for* Ariba *read* Arriba.
145	35	*for Sciurus* read *Seiurus*.
147	10	
146	31	*for* reorgnized *read* recognized.
147	24	for *moticilla* read *motacilla*.
165	7	add at end of line "(Tab. XI. fig. 1.)"
174	28	*for* Ariba *read* Arriba.
175	21	
178	19	*before* 1878 *insert* "Ibis,"
181	26	*for* Ariba *read* Arriba.
219	28	for *cinereus* read *caudatus*.
223	24	*for* Guadalajura *read* Guadalajara.
225	1	*for* "Guatemala (*Skinner*[11]), Peten, Belize," *read* "British Honduras, Belize (*O. S.*[16]); Guatemala (*Skinner*[11]), Peten,"
225	20	*for* series *read* species.
227	18	for *coronota* read *coronata*.
234	8	*for* Tupetero *read* Tupataro.
243	25	for *cyana* read *cayana*.
244	26,27,28	for *C.* read *D.*
252		before the heading **Fam. TANAGRIDÆ** insert Section IV. Oscines Conirostres.

Page	Line	
294	16	add at end of line "(Tab. XVII. fig. 2.)"
307	12	for ", Honduras, *San Pedro*" read "; HONDURAS, San Pedro."
322	35	for Tab. XXII. read Tab. XXIII.
331	22	for *erythromilas* read *erythromelas*.
342	5	for *C. cardinalis* read *C. virginianus*.
361	21	*before* "P. Z. S." *insert* "Bp."
371	7	*for* Antiqua *read* Antigua.
383	3	for *grammineus* read *gramineus*.
389	17	for *botteri* read *botterii*.
401	24	*for* Quatro *read* Cuatro.
408	31	*for* Rio *read* Real.
424	38	for *Pyrangra* read *Pyranga*.
481	9	for *Lamprospar* read *Lampropsar*.
481	25	*for* Achil *read* Cachil.
491	19	*for* Cienguilla *read* Cieneguilla.
500	14	add at end of line "PANAMA, Veragua (*Arcé*)."
511	4	for *chrgsolœma* read *chrysolœma*.

BIOLOGIA CENTRALI-AMERICANA.

ZOOLOGIA.

Class AVES*.

Subclass AVES CARINATÆ.

Order PASSERES.

Suborder OSCINES.

Section I. OSCINES DENTIROSTRES.

Fam. TURDIDÆ.

Subfam. *TURDINÆ*.

CATHARUS.

Catharus, Bonaparte, Consp. Av. i. p. 278 (1850). (Type *C. aurantiirostris*.)
Malacocichla, Gould, P. Z. S. 1854, p. 285. (Type *C. dryas*.)

This genus differs from the true Thrushes (*Turdus*) chiefly in its shorter, more rounded wings and in its long slender tarsi—characters suited to the terrestrial habits of all the species, and to their place of abode amongst dense brushwood or primæval forest. Twelve species are now known of the genus, of which no less than nine are found within our limits, the rest being Andean species occurring in various places as far south as the province of Yungas in Bolivia, whence we have lately received the species described as *C. mentalis*†, and where also *C. dryas* occurs. Though none of the species appear to occur at or near the sea-level, some (such as *C. fuscater*, *C. mexicanus*,

* The classification here adopted is nearly that of the 'Nomenclator Avium Neotropicalium' of Sclater and Salvin.

† Scl. & Salv. P. Z. S. 1876, p. 352.

and *C. dryas*) are found in the forest-clad slopes of the mountains at moderate height; others (as *C. melpomene*, *C. occidentalis*, and *C. griseiceps*) frequent the woods of the tablelands of 4000 to 5000 feet elevation; whilst the upland forests of the volcanoes, to a height of 10,000 feet, are the abode of *C. alticola*, *C. frantzii*, and perhaps of *C. gracilirostris*. The species are generally observed on the ground, searching amongst dead leaves for their food. *C. melpomene* has a pleasing song, not unlike that of a Robin (*Erithacus*), a bird which its gait and actions also call to mind.

The genus was originally founded on a Venezuelan species described as *C. aurantiirostris* by Dr. Hartlaub, and subsequently as *C. immaculatus* by Bonaparte. Mr. Gould's genus *Malacocichla* (based upon *Catharus dryas*), though somewhat aberrant as regards coloration, is structurally identical with *Catharus*. Mr. Gould considered his species to be closely allied to *Chamæza* and *Grallaria* (Formicariidæ); but this view cannot be maintained, *Catharus* being a typical member of the Turdidæ. The figure of *C. dryas** shows the front tarsal plate to be divided into three scutella. This is not so in any specimen we have examined, the tarsi of all of which have a single undivided plate running down the front.

1. Catharus melpomene.

Turdus melpomene, Cab. Mus. Hein. i. p. 5 (1850[1]); Licht. Nomencl. p. 25.

Catharus melpomene, Scl. P. Z. S. 1858, p. 97[2], 1859, pp. 323[3], 362[4], 370[5]; Scl. & Salv. Ibis, 1859, p. 6[6], 1860, p. 29[7]; Cab. J. f. Orn. 1860, p. 322[8]; Baird, Rev. Am. B. p. 7[9]; Lawr. Ann. Lyc. N. Y. ix. p. 90[10]; Sumichrast, Mem. Bost. Soc. N.H. i. p. 542[11]; Frantz. J. f. Orn. 1869, p. 289[12].

Catharus aurantiirostris, Scl. P. Z. S. 1856, p. 294[13] (nec Hartl.).

Supra cinnamomeo-brunneus, alis extus læte saturatioribus, pileo dorso fere concolori; subtus griseo-albidus, pectore grisescentiore, gula haud striata; rostro et pedibus aurantiaco-flavis. Long. tota 6·5, alæ 3, caudæ 2·5, tarsi 1·25, rostri a rictu 0·8. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico, Cordova (*Sallé*[13]), Jalapa[1] (*de Oca*[4]), Totontepec (*Boucard*[5]), Orizaba (*Sumichrast*[9 11]); Guatemala, Dueñas[7], Coban (*O. S. & F. D. G.*); Costa Rica[8], Quebrada Honda (*v. Frantzius*[10]), San José and Grecia (*Carmiol*[10]), Volcan de Cartago (*Arcé*).

Catharus melpomene was originally described from a Mexican specimen (Jalapa), where the species would appear to be not uncommon. In Guatemala we found it in brushwood, both in the tablelands and also in Alta Vera Paz. In the highlands of Costa Rica it seems to be equally abundant. Though the range of the species is probably broken by low-lying land at several points, no important variation has ensued, and we are unable to trace any tangible differences between specimens from most distant localities. There is some variation in the intensity of the colouring of the back, and also in the depth of the cinereous of the underparts; but these variations are not

* P. Z. S. 1854, p. 285, t. lxxv.

traceable to any special locality, and appear to be simply individual peculiarities. *Catharus melpomene* does not seem to be at all migratory in its habits: we observed its presence the whole year in Guatemala; and specimens were obtained in every month between July [7] and November. M. Boucard found it at Totontepec in January [4]. Its nest is an open structure composed chiefly of moss; the eggs are white, thickly marked with rufous-red. Prof. Sumichrast says [11] that it nests in the gardens of Orizaba; and we found it breeding close to Dueñas in Guatemala. Its habits in Costa Rica seem to resemble those it has in Guatemala. Dr. v. Frantzius says [12] that its monotonous but sweet song may be heard everywhere in the tableland of San José between April and June wherever green hedges line the roads in the neighbourhood of towns. The bird glides quickly through the shrubs, and flies close to the ground across the roads. It is not shy, and allows one to watch it closely.

The eyes, bill, and eyelids of this species are rich orange in the male bird. The maxilla of the female is light horn-colour [7].

Prof. Baird has suggested [9] that the Costa-Rica bird might be the true *C. aurantiirostris* of Hartlaub: but this is not the case; for on comparing it with a Venezuelan example in our collection, the absence in the latter of the rufous margins to the wing-feathers, as well as the olivaceous tone of the plumage above, is very apparent. The previous comparison of Mexican specimens with the Venezuelan type by Dr. Hartlaub, as recorded by Mr. Sclater [2], seems to have been overlooked by subsequent writers.

2. **Catharus alticola,** sp. n.

Catharus frantzii, Salv. Ibis, 1866, p. 190[1] (nec Cab.).

Supra oleagineo-brunneus; uropygio, alis et cauda concoloribus, pileo paulo rufescentiore; subtus grisescens, ventre imo et crisso albis; rostri maxilla cornea, mandibula flava; pedibus pallide corylinis. Long. tota 6·75, alæ 3·5, caudæ 3·0, rostri a rictu 0·9, tarsi 1·4. *Fem.* mari similis.

Similis *C. melpomenæ*, sed alis extus et corpore supra minus cinnamomeis et rostri et pedum coloribus distinguendus. A *C. frantzii* uropygio et cauda oleagineis nec cinnamomeis notatus.

Hab. GUATEMALA, forests of the Volcan de Fuego, from 6000 to 10,000 feet (*O. S. & F. D. G.*).

We obtained a single specimen only of this species during our stay at Dueñas in November 1861; and this example was subsequently [1] referred to the Costa-Rican *C. frantzii*. During Salvin's last visit to Guatemala, he obtained several more specimens, and found the bird not uncommon in the ravines of the Volcan de Fuego and throughout the forests on that mountain almost to the commencement of the growth of pines, at an elevation of 10,200 feet. It was observed usually on the ground, searching amongst leaves for food in the deepest shade of the forest. When standing in a wood-cutter's track, one of these birds would occasionally perch on a log at the side of the path with all the gesture of a Robin (*Erithacus*).

The additional specimens brought home by Salvin show the slight differences we have pointed out above when compared with the highland species of Costa Rica, *C. frantzii*. As these seem constant, it is necessary to provide each form with a different name. Compared with *C. melpomene*, the difference between the two is much more striking. Instead of the orange bill, eyelids, and legs of the male *C. melpomene*, *C. alticola* has the maxilla dark horn-brown and the mandible yellowish. The eyelid is inconspicuous dull brown, and the legs pale hazel. These differences are very obvious when freshly-killed specimens are compared.

3. **Catharus frantzii.**

Catharus frantzii, Cab. J. f. Orn. 1860, p. 323 [1]; Baird, Rev. Am. Birds, p. 9 [2]; Lawr. Ann. Lyc. N. Y. ix. p. 90 [3]; Frantz. J. f. Orn. 1869, p. 289 [4]; Boucard, P. Z. S. 1878, p. 50 [5].

Supra oleagineo-brunneus; pileo, uropygio et cauda saturatius rufescentibus; subtus grisescens, ventre imo albo; rostri maxilla cornea, mandibula flava; pedibus pallide corylinis. Long. tota 6·75, alæ 3·7, caudæ 3, rostri a rictu 0·86, tarsi 0·9. (Descr. maris ex San José, Costa Rica. Mus. nostr.)

Hab. Costa Rica [1], Rancho Redondo (*F. Carmiol* [3]), San José (*v. Frantzius* [3]), Volcan de Cartago (*v. Frantzius* [4], *Arcé*), Potrero Cerrado and La Palma (*v. Frantzius* [4]), Navarro (*Boucard* [5]).

This species seems to be nearly restricted in its range to the forests of the Volcano of Cartago, where most collectors in Costa Rica have found it. Dr. v. Frantzius [4] says that it occurs at an elevation of from 6000 to 7000 feet, and that he found it on the slopes of Irazu in May, at Potrero Cerrado in April, and later in the year at La Palma to the northward of San José, Carmiol having met with it at Rancho Redondo on the western slope of Irazu. Nothing is recorded of the habits of the species, which doubtless resemble those of *C. alticola*.

4. **Catharus occidentalis.**

Catharus occidentalis, Scl. P. Z. S. 1859, pp. 323[1], 370[2]; Baird, Rev. Am. B. p. 8[3]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 542[4]; Lawr. Bull. U.S. Nat. Mus. No. 4, p. 11[5].

Supra cinnamomeo-brunneus, pileo et cauda vix saturatioribus; subtus cinereus, gula et abdomine medio albicantibus, pectore fusco subobsolete flammulato; rostro corneo, mandibulæ basi flavicante; pedibus pallide corylinis. Long. tota 6·5, alæ 3·5, caudæ 2·9, rostri a rictu 0·8, tarsi 1·15. (Descr. maris ex Totontepec, Mexico. Mus. nostr. exempl. typ.)

Hab. Mexico, Totontepec (*Boucard* [1 2]), Oaxaca (*Fenochio*), Orizaba (*Sumichrast* [3 4]), Sierra Madre near Zapotitlan (*Sumichrast* [5]), Tierra fria (*le Strange*).

M. Boucard first discovered this species at Totontepec, in the Mexican State of Oaxaca, in January 1859 [1 2]; and specimens from the same district have been since sent to us by Don A. Fenochio. It has also been found nearer the isthmus of Tehuantepec by Prof.

Sumichrast, who obtained specimens in the Sierra Madre near Zapotitlan[5]. During his previous residence near Orizaba the same gentleman also met with it, and sent several specimens to the Smithsonian Institution[3]; he says that it has nearly the same range as *C. melpomene*[4]. These and others obtained by Mr. le Strange in the neighbourhood of Mexico itself show that the species is not one peculiar to Western Mexico, as Mr. Sclater at first supposed[1 2]. Its range, however, seems to be very limited, as it has not as yet been noticed out of the highlands of Southern Mexico.

The faint spots on the throat and chest render *C. occidentalis* easily distinguishable from *C. melpomene*, and, indeed, from all its congeners.

5. **Catharus fuscater.**

Myioturdus fuscater, Lafr. Rev. Zool. 1845, p. 341[1].

Catharus fuscater, Scl. P. Z. S. 1859, p. 324[2]; Salv. P. Z. S. 1867, p. 132[3], 1870, p. 180[4]; Lawr. Ann. Lyc. N. Y. ix. p. 90[5].

Supra schistaceo-niger, pileo fere nigro; subtus griseo-fuscus, abdomine medio albo; rostro et pedibus aurantiacis. Long. tota 6·5, alæ 3·5, caudæ 3, rostri a rictu 0·9, tarsi 1·3. (Descr. maris ex Cordillera de Tolé in Statu Panamensi. Mus. nostr.)

Hab. Costa Rica, Cervantes (*v. Frantzius*[5]); Panama, Cordillera de Tolé (*Arcé*[3]), Calovevora and Cordillera del Chucu (*Arcé*[4]).—Colombia[1]; Ecuador[2].

This, the oldest known member of the genus, was not referred to its proper position until Mr. Sclater removed it from the Formicariidæ (where it had been placed by its describer Lafresnaye[1]), and classed it among the Turdidæ in the genus *Catharus*[2].

Its range, though wide, is not so extensive as that of its congener *C. dryas*; still it is found from Ecuador to Costa Rica, specimens from which places, as well as from the State of Panama, show no differences that we can trace.

Though not so rare as most other *Cathari*, it cannot be said to be a common species. More specimens have been sent us from the mountainous parts of Panama than from elsewhere.

A Costa-Rican example was compared by Mr. Lawrence with Lafresnaye's type at Boston, and certain differences described[5], notably the colour of the maxilla and the yellowish tinge of the abdomen in the Costa-Rica bird. The variation in the colour of the bill, we believe, is due entirely to age, and the tint of the abdomen to the freshness of the specimen, the ochre tint of this part in *C. dryas* being very evanescent. The blackness of the back is a sexual difference in species of this section of the genus.

The nearly uniform blackness of the whole of the upper plumage distinguishes *C. fuscater* from all other Central-American *Cathari*.

6. **Catharus griseiceps.** (Tab. I. fig. 2.)

Catharus griseiceps, Salv. P. Z. S. 1866, p. 68[1], 1867, p. 132[2], 1870, p. 179[3].

Supra olivaceo-brunneus, capite toto cum collo griseis, pileo paulo obscuriore, alis extus et cauda cinnamomeis; subtus griseus, gutture pallidiore, ventre medio et crisso albis; rostro et pedibus aurantiacis. Long. tota 6, alæ 3·5, caudæ 2·6, rostri a rictu 0·85, tarsi 1·25. (Descr. maris ex Santa Fé in Statu Panamensi, Mus. nostr. exempl. typ.)

Hab. Panama, Volcan de Chiriqui, Santa Fé, Chitra, Calovevora, Calobre (*Arcé*[1 2 3]).

This species appears to be restricted in its range to the mountainous parts of the State of Panama, being found from the Volcano of Chiriqui to Santa Fé and Calobre. Further eastward it has not yet been met with, as none of the large collections made on the line of the Panama Railway have contained examples. The grey head and nearly uniform ashy under surface are distinguishing characteristics of this species.

7. **Catharus gracilirostris.** (Tab. I. fig. 1.)

Catharus gracilirostris, Salv. P. Z. S. 1864, p. 580[1]; Lawr. Ann. Lyc. N. Y. ix. p. 90[2].

Supra oleagineo-brunneus, capite toto obscure cinereo; subtus cinereus, pectore dorso concolori; rostro nigro, pedibus corylinis. Long. tota 5·5, alæ 3·0, caudæ 2·7, rostri a rictu 0·8, tarsi 2·2. (Descr. exempl. typ. ex Volcan de Cartago, Costa Rica. Mus. nostr.)

Hab. Costa Rica, Volcan de Cartago (*Arcé*[1], *Rogers*), San Mateo (*J. Cooper*[2]).

Originally described from two specimens obtained for us by Arcé in the Volcan de Cartago. Even in Costa Rica, the only country where it has been found as yet, the species must be considered rare, few other specimens having come under our notice. M. Boucard, during his recent journey to that country, obtained but two examples, both from the Volcan de Cartago, from which locality Rogers also procured us a specimen. This last is a young bird, the remains of the spotted plumage showing on the under surface.

The black slender bill, grey head, and olive chest serve to distinguish this species at a glance from all its congeners.

8. **Catharus mexicanus.** (Tab. II. fig. 1.)

Malacocichla mexicana, Bp. Compt. Rend. xliii. p. 998[1]; Scl. P. Z. S. 1857, p. 203[2]; Scl. & Salv. Ibis, 1859, p. 7[3].

Catharus mexicanus, Scl. P. Z. S. 1859, p. 324[4], 1864, p. 172[5]; Baird, Rev. Am. B. p. 11[6]; Salv. P. Z. S. 1866, p. 69[7], 1870, p. 179[8]; Lawr. Ann. Lyc. N. Y. ix. p. 90[9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 542[10].

Supra oleagineo-brunneus, pileo et capitis lateribus nigris; subtus cinereus, pectoris lateribus dorso concoloribus, ventre medio albicante; rostro et pedibus flavis. Long. tota 6·0, alæ 3·6, caudæ 2·5, rostri a rictu 0·9, tarsi 1·25. (Descr. exempl. ex Teleman, Guatemala. Mus. nostr.)

Hab. Mexico (*White*[5]), Jalapa (*Sallé*[1 2]), Orizaba (*Sumichrast*[10]); Guatemala, Coban

(*Delattre* [3]), Teleman (*O. S. & F. D. G.*[6]); Costa Rica, Tucurriqui (*Arcé* [7 9]); Panama, Calovevora, Cordillera del Chucu (*Arcé* [8]).

This well-marked species is one of the older-known members of the genus, having been discovered near Jalapa by M. Sallé, whose specimens were described by Bonaparte [1]. Though of wide range, but few examples have come under our notice; nor did we ever actually meet with it ourselves in Guatemala, though one was secured for us by a native collector sent by us to explore the valley of the Polochic river. At no point of its range is it common, judging from the single specimens that have reached us in collections from various points. *C. mexicanus* can at once be recognized by its black head contrasting with the olive-brown back. In some specimens the cheeks and chest are nearly pure grey and the head deep black; in others these parts have an olivaceous tinge: the former we take to be male specimens, the latter female, though Arcé's dissected skins are marked the reverse.

9. **Catharus dryas.** (Tab. II. fig. 2.)

Malacocichla dryas, Gould, P. Z. S. 1854, p. 285, t. 75 [1]; Scl. & Salv. Ibis, 1859, p. 7 [2].
Catharus dryas, Scl. P. Z. S. 1859, p. 324 [3]; Salv. P. Z. S. 1866, p. 69 [4]; Baird, Rev. Am. B. p. 10 [5].
Malacocichla maculata, Scl. P. Z. S. 1858, p. 64 [6].
Catharus maculatus, Scl. P. Z. S. 1859, p. 324 [7]; Cat. Am. B. p. 1 [8].

Supra olivaceo-fuscus, pileo et capitis lateribus nigerrimis; subtus ochraceus, pectore toto fusco maculato; rostro et pedibus flavis. Long. tota 7·0, alæ 3·9, caudæ 3·0, rostri a rictu 0·85, tarsi 1·35. (Descr. maris ex V. de Agua, Guatemala. Mus. nostr.)

Hab. Guatemala (*Skinner* [1]), Teleman (*O. S. & F. D. G.*[5]), Volcan de Agua above San Diego (*O. S.*).—Colombia; Ecuador [6 8]; Bolivia.

We have hitherto considered the species described by Mr. Sclater as *C. maculatus* to be distinct from *C. dryas*; but the acquisition of additional specimens both from South and Central America has enabled us to make further comparison, with the result that we can no longer discriminate two species. It is true that freshly-killed specimens are as brightly coloured as Gould's plate [1]; but experience has shown that the yellow of the under surface rapidly fades with exposure; and this being the case, one of the chief differences relied upon fails to differentiate the two species. The difference of the colour of the back is sexual, females being more olivaceous than males.

It is somewhat singular that in Central America this species has hitherto only been observed in Guatemala. Its presence in other parts doubtless remains to be discovered. For a long time we were accustomed to look upon *C. dryas* as one of the rarest of Guatemalan birds; and until Salvin's last journey only three specimens had come under our notice. Two of these were from Vera Paz, one of them having been shot in the valley of the Rio Polochic near Teleman. The precise origin of the other, the type, now in the British Museum, is not known.

When staying at Dueñas in the autumn of 1873, Salvin's Indian hunters occasionally brought specimens from the forests of the slopes of the Volcan de Agua, above the village of San Diego, and from 2000 to 3000 feet above the sea. In this way more than a dozen specimens were acquired, amongst which was only one female. The bill, eyelids, tarsi, and toes of the fresh bird are orange, and the under plumage of a rich tint not seen in older skins.

In South America the range of *C. dryas* is extensive. It occurs, though rarely, in Bogotá collections. Fraser obtained it at Chillanes and Pallatanga, in Ecuador[8]; and the birds described by Mr. Sclater as *C. maculatus* came from the valley of the Rio Napo[6]. Mr. Buckley has also sent us a skin from Baisa in the same Republic. To Mr. Buckley, also, we are indebted for a skin from Bolivia.

TURDUS.

Turdus, Linnæus, Syst. Nat. i. p. 291 (1766) (partim).

Seventeen species of *Turdus* are found within the limits of Central America; of these, eight are northern species, several of which visit the country only during the winter months. The resident species are variously distributed, some having a range almost coextensive with the limits of the subregion. Others are much more restricted in their domicile; and amongst these the species inhabiting the higher ranges of mountains and the pine-clad summits of the volcanoes are specially to be noted. Nearly every large section of the country has one or more Thrushes peculiar to it: thus in Mexico we find on the shores of the Pacific, from Mazatlan to Tehuantepec, *T. flavirostris*, and in the pine-forests of the interior *T. pinicola*. In the highlands of Guatemala *T. rufitorques* is found; Mexico and Guatemala have *T. infuscatus* in common, a true Blackbird, very closely allied to the European species, of which a second representative is found in the Andes, in Venezuela, and in the island of Tobago; Costa Rica has two peculiar species in *T. plebeius* and *T. nigrescens*; and Costa Rica and the State of Panama share *T. obsoletus*. The resident species of wide range are *T. tristis* and *T. grayi*. The former of these extends from Southern Mexico almost to the line of the Panama Railway; the latter, with a wider northern extension, also passes still further to the southward.

Concerning the seven species constituting Prof. Baird's subgenus *Hylocichla*, we are in some doubt how far to admit the claims of all of them to rank as separate species, especially as it has been strongly urged by American writers that links are not wanting connecting some of them together. Without going into a discussion of these claims, we may remark that our chief object in treating *Turdus ustulatus* and *T. aliciæ* as distinct from *T. swainsoni*, and *T. auduboni* as distinct from *T. pallasi*, is to give prominence to the peculiarities of their geographical distribution in the winter season—points which have considerable significance when the value of slight modifications of colour or size is attempted to be estimated.

A. Hylocichla.

a. *Major, capite læte cinnamomeo, pectore et hypochondriis permaculatis.*

1. Turdus mustelinus.

Tawny Thrush, Lath. Gen. Syn. ii. p. 28[1]; Penn. Arct. Zool. ii. p. 19[2].

Turdus mustelinus, Gm. Syst. Nat. i. p. 817[3]; Scl. P. Z. S. 1856, p. 294[4], 1859, p. 362[5]; Moore, P. Z. S. 1859, p. 55[6]; Scl. & Salv. Ibis, 1859, p. 6[7]; Baird, Rev. Am. B. p. 13[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543[9]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 11[10]; Baird, Brew. & Ridgw. N. Am. B. i. p. 7[11]; Gundl. Orn. Cub. p. 57[12]; Coues, B. N.W. p. 2[13].

Turdus (Hylocichla) mustelinus, Coues, B. Col. Vall. p. 28[14].

Turdus densus, Bp. C. R. xxxviii. p. 2, et Notes Orn. p. 26[15].

Supra præcipue in pileo cinnamomeus, dorso postico et cauda olivaceo tinctis; subtus albus, pectore et hypochondriis distincte nigro maculatis; auricularibus et capitis lateribus nigro et rufescente albido notatis; loris albis; rostro corylino, mandibulæ basi et pedibus flavis. Long. tota 7·5, alæ 4·3, caudæ 2·9, rostri a rictu 1·0, tarsi 1·25. (Descr. exempl. ex Choctum, Vera Paz. Mus. nostr.)

Hab. North America, east of the Missouri plains[11]. — Mexico, Cordova (*Sallé*[4]), Jalapa (*de Oca*[5]), Orizaba (*Sumichrast*[9]), Tehuantepec city (*Sumichrast*[10]), Tierra Caliente of the Atlantic (*le Strange*), Tabasco[15]; Guatemala[7], Choctum, Coban, Tactic, Godines (*O. S. & F. D. G.*); Honduras, Omoa (*Leyland*[6]).—Cuba[12].

This well-known species was described by Latham[1] and Pennant[2] towards the end of last century; and upon their descriptions Gmelin[3] bestowed the name *Turdus mustelinus.* It is a common species throughout the United States, between the Mississippi river and the Atlantic, and breeds as far north as Massachusetts[11]. In winter it rarely visits Cuba[12], but is common in the eastern parts of Mexico and Central America, as far south as Omoa on the north coast of Honduras[6]. In Guatemala the most western point we have met with it is Godines, a small village 7000 feet above the sea, situated in the mountains at the eastern end of the upland lake of Atitlan; here it was observed in February 1874. In the neighbourhood of Coban, in Vera Paz, it is, during the winter months, a very common bird; and it may be found in the second-growth woods, especially wherever a mountain-stream runs. It utters no song during its stay in Guatemala; but during the summer *Turdus mustelinus* is remarkable for its song, to the sweetness of which all writers on North-American birds bear testimony[11].

As Prof. Baird remarks[8], this Thrush is subject to very slight variation in its markings, but some specimens have the spots on the breast rather larger and more thickly spread than others. This difference is shown in our series from Guatemala, and sufficiently proves that there is no ground for supposing *T. densus,* Bonap., founded on a specimen from Tabasco, to be a valid species[15].

b. *Minores, cauda dorso concolori.*

2. Turdus fuscescens. ✓

Turdus fuscescens, Steph., Shaw's Zool. x. p. 182[1]; Lawr. Ann. Lyc. N. Y. vii. p. 326[2]; Baird, Rev. Am. B. p. 17[3]; Pelz. Orn. Bras. p. 92[4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 9[5]; Gundl. Orn. Cub. p. 57[6]; Merrill, Pr. U. S. Nat. Mus. i. p. 119[7].

Turdus (*Hylocichla*) *fuscescens*, Coues, B. Col. Vall. i. p. 39[8].

Supra rufescenti-brunneus unicolor; subtus albus, colli lateribus et pectore rufescentibus maculis subtriangularibus brunneis parce adspersis; rostro corylino, mandibulæ basi et pedibus flavis. Long. tota 6·8, alæ 3·8, caudæ 2·75, rostri a rictu ·9, tarsi 1·1. (Descr. exempl. ex Washington, D.C., Smiths. Inst. no. 28230. Mus. nostr.)

Hab. N. America, Canada, Eastern States, and westwards to Utah, Colorado, and Texas[5 8].—Panama, Lion Hill (*M'Leannan*)[2], Aspinwall (*Mus. Boucard*).—S. America to the Amazon[4]; Cuba[6].

An excellent account of this species, as regards its range within the limits of North America, its habits and synonymy, is given in Dr. Coues's 'Birds of the Colorado Valley'[8], and in Baird, Brewer, and Ridgway's work[5]. In the former Dr. Coues remarks on the absence of *Turdus fuscescens* from Arizona and New Mexico, and adds that it must take a somewhat circuitous route in gaining its winter home in Central America. But the records of the occurrence of this species outside the limits of the United States are so scanty that it can hardly be said that we really know where the major portion of the winter migrants go during that season. It is quite rare in Cuba[6]; and as far as Central America and Mexico are concerned, we have Dr. Merrill's authority for its occurrence in the valley of the Rio Grande[7]; but from this point, if we except Prof. Sumichrast's doubtful reference to the occurrence of this species near Orizaba*, we have no trace of it whatever until we come to Panama, where M'Leannan obtained a single specimen[2], and whence we have recently seen another in the possession of Mons. Boucard, to whom it was sent from Aspinwall. These two specimens are our authority for including *Turdus fuscescens* in this work. Passing into South America we have only five instances of the occurrence of the species there. Herr von Pelzeln records[4] that Natterer obtained four specimens in December at San Vicente in Brazil; and Mr. H. Wickham also shot one at Santarem on the Amazon. This last-named specimen we once had an opportunity of examining.

3. Turdus swainsoni. ✓

Brown Thrush, Lath. Gen. Syn. ii. p. 28[1]; Penn. Arct. Zool. ii. p. 19[2].

Turdus swainsoni, Cab., Tsch. Faun. Per. p. 188[3]; Scl. P. Z. S. 1858, p. 451[4]; Baird, Rev. Am. B. p. 19[5]; Lawr. Ann. Lyc. N. Y. ix. p. 91[6]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 11[7] (?); Baird, Brew. & Ridgw. N. Am. B. p. 14[8]; Gundl. Orn. Cub. p. 58[9].

* Mem. Bost. Soc N. H. i. p. 543.

Turdus (*Hylocichla*) *swainsoni,* Coues, B. Col. Vall. i. p. 34 [10].
Turdus minor, Gm. Syst. Nat. i. p. 809 (partim); Scl. P. Z. S. 1857, p. 212(?) [11].
Turdus minimus, Lafr. Rev. Zool. 1848, p. 5 [12]; Lawr. Ann. Lyc. N. Y. viii. p. 7 [13].

Supra cinnamomeo-brunneus unicolor; subtus albus, gula, genis et pectore fulvescenti lavatis; cervice antico, pectore et hypochondriis brunneo crebro maculatis; rostro corneo, mandibulæ basi et pedibus pallide corylinis. Long. tota 7·0, alæ 3·9, caudæ 2·8, rostri a rictu 0·8, tarsi 1·1. (Descr. exempl. ex Paraiso, Panama. Mus. nostr.)

Hab. N. America, Eastern States, westwards to Humboldt Mountains, north to Slave Lake and Fort Yukon [8].—Mexico (?), Orizaba (*Botteri* [4]) (?), Tapana, Tehuantepec (*Sumichrast* [7]) (?); Guatemala, Coban (*Sarg* fide *v. Berlepsch*); Costa Rica, Barranca, Frailes, and Cervantes (*Carmiol* [6]), Irazu (*Rogers*); Panama, Lion Hill (*M'Leannan* [13]), Paraiso (*Hughes*).—Colombia [12]; Ecuador [4]; Peru [3]; Cuba [9].

Though this Thrush was known to Latham [1] and Pennant [2] and other early writers, no name was applied to it that is admissible until Dr. Cabanis, in 1845, bestowed upon it that of *Turdus swainsoni* [3], under which it is now universally known. The history of the early nomenclature of this bird is fully given by Dr. Coues in his 'History of the Hylocichlæ,' and in the synonymy of the species [10]. A full account of *T. swainsoni* and its close ally *T. ustulatus* will also be found in Baird, Brewer, and Ridgway's work.

Putting aside *T. aliciæ* for the present, and considering the relationship subsisting between the eastern and western forms of this bird, we find points in their winter distribution that are of considerable interest. Hitherto we have been in the habit of ascribing the winter visitant to Guatemala to the eastern bird, *T. swainsoni*; but the acquisition of a larger series and a reexamination of the question shows that by far the larger portion of them are of the western form, *T. ustulatus*. Still the true *T. swainsoni* does occur in Guatemala, as Count v. Berlepsch assures us he has a specimen from Coban that is undoubtedly of that race. Passing further south, we find that in Costa Rica the true *T. swainsoni* seems to be exclusively found. Beyond Costa Rica we have been unable to trace *T. ustulatus* at all, every specimen from Panama and South America belonging to the *T. swainsoni* form. We are left in some uncertainty as regards the Mexican bird. *T. ustulatus* has undoubtedly been recognized in the Tres Marias Islands; but a bird from Orizaba, and others from Tehuantepec, have been ascribed to *T. swainsoni*, a race we should not expect to find in Mexico at all.

The winter distribution of these two races is almost exactly parallel to that of *Geothlypis philadelphia* and *G. macgillivrayi*, where the eastern bird is absent from Mexico and Guatemala, the western bird being the prevalent species. The two mingle in Costa Rica; and in Panama and further south the eastern form is exclusively found.

4. Turdus ustulatus.

Turdus ustulatus, Nutt. Man. i. p. 400 (1840) [1]; Baird, Rev. Am. B. p. 18 [2]; Grayson, P. Bost. Soc. N. H. xiv. p. 276 [3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 266 [4].

Turdus swainsoni, var. *ustulatus*, Baird, Brew. & Ridgw. N. Am. B. i. p. 16[5].
Turdus swainsoni, c. *ustulatus*, Coues, B. Col. Vall. i. p. 35[6].
Turdus minor, Scl. P. Z. S. 1857, p. 212[7] (?).
Turdus swainsoni, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 11[8] (?).

Supra olivaceo-brunneus unicolor; subtus albus, gula, genis et pectore fulvescenti lavatis; cervice antico, pectore et hypochondriis brunneo crebre maculatis; rostro corneo, mandibulæ basi et pedibus pallide corylinis. Long. tota 7·0, alæ 3·7, caudæ 2·8, rostri a rictu ·8, tarsi 1·2. (Descr. maris ex Volcan de Agua, Guatemala (alt. 3500 ft.). Mus. nostr.)

Hab. N. America, Pacific coast from Alaska to California[5].—Mexico, Tres Marias Islands (*Grayson*[3 4]), Orizaba (*Botteri*[7])?, Tehuantepec (*Sumichrast*[8])?; Guatemala, Coban, Dueñas, Costa Grande (*O. S. & F. D. G.*).

This western race of *T. swainsoni*, from which it differs in the more rufescent tint of its plumage above, seems to winter in Mexico and Guatemala. Grayson found it quite abundant in the month of January in the woods of the Tres Marias Islands off the Mexican coast, where it was more timid and shy than any other bird on the islands. It uttered a low plaintive whistle, and seemed solitary in its habits. Grayson adds that though common on these islands it is never seen on the adjoining mainland[4]. Birds attributed to *T. swainsoni* have been recorded from Orizaba[7] and Tehuantepec[8]; but from the line of migration of this race, which barely touches eastern Guatemala, it seems probable that these birds really belonged to the rufous form *T. ustulatus*.

In Guatemala we found it very common at Coban in Vera Paz during the winter months, where it frequented the second-growth woods so prevalent in that district. On the Pacific side of Guatemala we did not meet with it until the winter of 1873–74. It was then found to be not uncommon on the slopes of the mountains between Capetillo and San Diego, a heavily wooded tract of country with patches of second-growth woods.

In thus tracing the winter quarters of *T. ustulatus* and *T. swainsoni* as shown by the slight difference in colour between them, we are aware that these differences are of a very slight character, and that it is very likely that the two forms will, at no distant date, have to be considered as belonging to one somewhat variable species. Should this be so, the name this species should bear is *T. ustulatus*.

5. Turdus aliciæ.

Turdus aliciæ, Baird, Birds N. Am. p. 217, t. 81. f. 2[1]; Rev. Am. B. p. 21[2]; Lawr. Ann. Lyc. N. Y. ix. p. 91[3]; Salv. P. Z. S. 1870, p. 180[4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 11[5]; Gundl. Orn. Cub. p. 58[6].
Turdus (*Hylocichla*) *swainsoni*, b. *aliciæ*, Coues, B. Col. Vall. i. p. 35[7].

Similis *T. swainsoni*, sed colore corporis superi grisescentiore, genis griseis et colore gulæ et pectoris albicantioribus distinguendus. Long. tota 7·0, alæ 4·1, caudæ 3·0, rostri a rictu ·8, tarsi 1·23. (Descr. maris ex Chiriqui. Mus. nostr.)

Hab. N. America, Eastern States, west to Fort-Yukon and Missouri-river States, shores

of Arctic Ocean from Labrador to Kodiak [5].—Costa Rica, San José (*v. Frantzius* [3]); Panama, Volcan de Chiriqui (*Arcé* [4]).—Cuba [6]; Eastern Asia in the north of Kamtschatka.

Concerning the true status of *Turdus aliciæ* much controversy has taken place amongst ornithologists of the United States. Prof. Baird was the first to distinguish it from *T. swainsoni* [1]; and its specific distinctness is upheld in Baird, Brewer, and Ridgway's work [5]. Mr. J. A. Allen has considered it to be undistinguishable as a species from *T. swainsoni*, whilst Dr. Coues, in his most recent work [7], places it as an imperfectly segregated race of *T. swainsoni*, and ranks it in the same category with *T. ustulatus*. These naturalists have all had many times over the amount of materials at their disposal for arriving at their conclusions than we have; so that we do not feel in a position to give a decided opinion on so delicate a point; but the skins before us, so far as they go, conform to the differences pointed out by the original describer, and we have no difficulty in assigning our single Central-American specimen to its right position.

This skin, from the Volcan de Chiriqui, and another from Costa Rica are all that have hitherto been obtained in Central America; so that that country can hardly be looked upon as the usual winter quarters of the race. What becomes of the birds at this season, which in summer swarm on the shores of the Arctic Ocean to breed, is a matter that is not yet known. *T. aliciæ* is stated to have once visited Cuba [6]; and it is said to be found on the mainland of South America; but on the latter point we have no evidence of our own to bring forward. A full history of *T. aliciæ* is given in Baird, Brewer, and Ridgway's work [5].

c. *Cauda rufescente, dorso haud concolori.*

6. **Turdus pallasi.**

Turdus pallasi, Cab. Arch. f. Naturg. xiii. p. 205 [1]; Scl. & Salv. Ibis, 1860, p. 272 [2]; Baird, Rev. Am. B. p. 14 [3]; Baird, Brew. & Ridgw. N. Am. B. i. p. 18 [4].

Turdus (*Hylocichla*) *pallasi*, Coues, B. Col. Vall. i. p. 20 [5].

Supra brunnescenti-fuscus, uropygio et cauda rufescentibus; subtus albus, linea rictali et maculis pectoralibus distinctis fusco-nigris; rostro corylino, mandibulæ basi flavo, pedibus flavis. Long. tota 6·3, alæ 3·5, caudæ 2·65, rostri a rictu ·8, tarsi 1·2. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Hab. N. America, Eastern States [4].—Guatemala, Coban (*O. S.* [2]).

The true *Turdus pallasi*, the small Rufous-tailed Thrush of the eastern States, can, so far as we know at present, only claim a place in the Central-American fauna from the fact of a specimen of it having been obtained near Coban, Vera Paz, in November 1859. This agrees accurately with examples from the vicinity of Washington with which we have compared it. It is decidedly smaller than the resident Mexican and Rocky-Mountain race *T. auduboni*, but larger than the western race usually called *T. nanus*.

The usual winter quarters of the true *T. pallasi* do not apparently extend beyond Florida, as there are no authentic records of its presence in the West-Indian islands, nor even in the valley of the Rio Grande. Our Guatemalan specimen therefore should, we think, be looked upon as a straggler which has flown far beyond the ordinary limits of the winter quarters of the species. A very full account of *T. pallasi* and its allied races is given in Dr. Coues's recently published 'Birds of the Colorado Valley' [5].

7. Turdus auduboni.

Merula silens, Sw. Phil. Mag. new ser. i. p. 369 [1] (nec Vieill.).
Turdus silens, Scl. P. Z. S. 1858, p. 300 [2].
Turdus solitarius, Scl. P. Z. S. 1857, p. 212 [3].
Turdus auduboni, Baird, Rev. Am. B. p. 16 [4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 542 [5]; Henshaw, Bull. Nutt. Orn. Club, iv. p. 134 [6].
Turdus pallasi, var. *auduboni*, Baird, Brew. & Ridgw. N. Am. B. i. p. 21 [7].
Turdus (*Hylocichla*) *pallasi*, c. *auduboni*, Coues, B. Col. Vall. i. p. 21 [8].

Similis *T. pallasi*, sed colore corporis supra cinerascentiore et minus cinnamomeo, cauda brunnescentiore; statura quoque crassitiore distinguendus. Long. tota 7·0, alæ 4·0, caudæ 3·1, rostri a rictu ·8, tarsi 1·2. (Descr. fem. ex Oaxaca, Mexico. Mus. nostr.)

Hab. N. America, Southern Rocky-Mountain region [6 7 8].—Mexico, Temascaltepec (*Bullock* [1]), La Parada (*Boucard* [2]), Orizaba (*Botteri* [3], *Sumichrast* [5]); Guatemala, Pine-forest of Volcan de Fuego, alt. 10,000 to 12,000 ft. (*O. S.*).

In his paper on Bullock's collection of Mexican birds Swainson gave the characters of this Thrush [1], but unfortunately chose for it the name of *Turdus silens*, one that had previously been employed by Vieillot. He also erroneously referred to pl. 43. fig. 2 of Wilson's 'American Ornithology' (vol. v.) as representing his bird, this figure, in fact, being a portrait of *T. swainsoni*. Swainson's name, however, remained in common use until 1864, when Prof. Baird showed the impropriety of its retention, and substituted that of *T. auduboni*, basing his name upon a specimen from Fort Bridger [4].

The relationship subsisting between the three forms of Red-tailed Thrushes *T. pallasi*, *T. auduboni*, and *T. nanus* had long been a matter of discussion amongst ornithologists of the United States; and the matter still seems to be *sub judice*. In Dr. Coues's 'Birds of the Colorado Valley,' and in Baird, Brewer, and Ridgway's 'North American Birds,' the small western form *T. nanus* and the large Colorado and Mexican form *T. auduboni* are treated as imperfectly segregated races of the eastern *T. pallasi*; but Mr. W. H. Henshaw, in a recent paper [6], seems inclined to the view that segregation has proceeded far enough to admit of each race being recognized with certainty. As our American brethren, with far more ample materials from which to form a judgment, seem to be not yet of accord on this subject, it would be presumptuous of us to pronounce a decided opinion; but as *T. nanus* seems to be absent from our limits, and as the true *T. pallasi* has only occurred once within them, *T. auduboni* is left practically the sole

representative of the three races within our limits. We therefore think it best to use this name for the common Mexican bird.

In North America *T. auduboni* is found from Fort Bridger southwards, Mr. Ridgway having met with it in the Wahsatch Mountains, and Mr. Allen having observed it breeding in the mountains of Colorado from about 8000 feet to the timber-line. In Mexico it is a common species in the tablelands, judging from the number of specimens sent home in collections. Prof. Sumichrast mentions it as an inhabitant of the alpine region, and as common in the pine-woods of the district of Orizaba. He obtained it at all seasons at Moyoapam, a locality about 8500 feet above the sea-level [5].

Its presence in Guatemala is known from a single specimen obtained in December 1873 in the pine-forests of the Volcan de Fuego, at an elevation of about 11,000 feet above the sea. Whether the species is resident in this tract of forest or not cannot at present be stated; but it is not at all improbable that it is to be found there, as near Orizaba, at all seasons. It is also almost sure to be met with in the upland ridges of the Guatemala Altos which stretch north-westwards to the Mexican frontier. Our Guatemala bird exactly resembles Mexican examples, being fully equal to them in size, and consequently considerably larger than the Vera-Paz specimen of the true *T. pallasi*.

B. Planesticus.

Gula nigro striata aut punctata, pectore et hypochondriis immaculatis.

Sexus similes.

8. **Turdus tristis.**

Merula tristis, Sw. Phil. Mag. new ser. i. p. 369 [1].

Turdus tristis, Scl. & Salv. P. Z. S. 1870, p. 838 [2]; Salv. P. Z. S. 1870, p. 180 [3]; Salv. Ibis, 1872, p. 314 [4].

Turdus assimilis, Cab. Mus. Hein. i. p. 4 [5]; Scl. P. Z. S. 1857, p. 202 [6], 1859, pp. 362 [7], 370 [8], 1864, p. 172 [9]; Baird, Rev. Am. B. p. 24 [10]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543 [11].

Turdus leucauchen, Scl. P. Z. S. 1858, p. 447 [12]; Scl. & Salv. Ibis, 1859, p. 6 [13]; Salv. P. Z. S. 1867, p. 132 [14]; Lawr. Ann. Lyc. N. Y. ix. p. 91 [15].

Supra olivascenti-brunneus, cauda (in stirpe typica) dorso concolori; subtus dilutior, macula pectorali et ventre imo albis; gula nigro distincte maculata; rostro flavido (nonnunquam corylino), pedibus pallide corylinis. Long. tota 9·0, alæ 4·9, caudæ 3·8, rostri a rictu 1·0, tarsi 1·3. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico, Temascaltepec (*Bullock* [1]), Jalapa [5] (*Sallé* [6], *de Oca* [7]), Vigia (*Sallé* [6]), Juquila and Teotalcingo (*Boucard* [8]), Orizabà (*Botteri*), Forests of Muero, Potrero, Cordova, and Orizaba (*Sumichrast* [11]), valley of Mexico (*White* [9], *le Strange*), Puente nacional (*Pease*); Guatemala [13], Coban, Choctum, Cahabon to San Luis, Dueñas (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [2]); Nicaragua, Chontales (*Belt*) [4]: Costa Rica, Dota Mountains (*Carmiol* [15]), Navarro (*J. Cooper* [15]); Panama, Volcan

de Chiriqui, Boqueti de Chitra, Cordillera de Tolé, Calovevora, Calobre, Santa Fé (*Arcé* [3] [14]).

Under the name *Merula tristis* Swainson, in 1827, described a Thrush from the highlands of Mexico [1]. The description is so brief that it is hardly to be wondered at that the name was for some time unrecognized or misapplied, and the same species received the new name of *Turdus assimilis* from Dr. Cabanis [5]. As Swainson's type, still existing at Cambridge, shows that the description, so far as it goes, is accurate, *T. tristis* is certainly the right name to use for this Thrush.

It belongs to a southern group of Thrushes, its nearest ally being *T. crotopezus* of Bolivia and South Brazil, from which it differs but little.

Within Mexico and Central America *T. tristis* has a wide range, extending from South Mexico to the State of Panama; but within this area a very considerable amount of variation is observable in a large series of specimens. Mexican individuals which are typical of *T. tristis* have the back olive-brown and a light-coloured tail. In Guatemala, especially in the western parts, birds with a rich olive-brown back are common; but their tails are somewhat darker than those of Mexican specimens. Similar birds also occur at the extreme end of the range of the species, in the State of Panama. In the northern parts of Vera Paz the prevalent form of this Thrush has the back of a blackish ash colour; the white mark on the throat is also more conspicuous than in the Mexican bird, and the black throat-marks more plainly shown. Upon one of these Vera-Paz specimens Mr. Sclater bestowed the name *T. leucauchen* [12]; but from the time the separation was made specimens have been reaching us from various parts showing characters connecting by every stage of transition *T. leucauchen* to *T. tristis*. We have thus been obliged to merge the former name as a synonym of the latter; for it is evident that *T. leucauchen*, though in its extreme form very different from *T. tristis*, is not nearly sufficiently segregated to admit of the two races bearing distinct names. The *T. leucauchen* form is not strictly confined to the forests of Northern Vera Paz, but is found also in Honduras, Nicaragua, and Costa Rica, but everywhere mingled with birds approaching the *T. tristis* type of colour.

T. tristis, as we propose to call all these birds, appears to be by no means an uncommon species in Southern Mexico, as most collectors there have obtained an abundant supply of specimens. Prof. Sumichrast tells us that it has a very extended area of distribution in the State of Vera Cruz, being, however, restricted to the hot and temperate regions below an elevation of about 4300 feet. Though a sedentary bird, he adds, it is not always to be found in the same localities, but changes its residence frequently, influenced by the ripening of the berries upon which it feeds [11]. M. Boucard obtained its eggs in the State of Oaxaca, which Mr. Sclater described as like pale varieties of *T. merula*, being of a pale greenish white, spotted and freckled with two shades of rufous, and measuring 1·1 by 0·75 inch [8].

In Guatemala *T. tristis* is seldom absent from the neighbourhood of Dueñas in the plains between the Volcanoes of Agua and Fuego, where *Ipomœa murocoides* abounds. It is there a rather shy bird. We never found its nest, but obtained young birds which had not thrown off their first spotted plumage. In Vera Paz *T. tristis* is by no means common in the vicinity of Coban; but at a lower elevation in the forests that stretch away to the confines of Peten it is very abundant. The bird-collectors of Coban obtain many skins from this district; and we ourselves observed it wherever we went in these forests. Owing, perhaps, to the different character of the vegetation of this part of Vera Paz to what prevails at Dueñas, *T. tristis* is here a strictly forest-loving species. To this cause, too, is probably due the darker colouring of the birds of Vera Paz.

9. **Turdus plebeius.**

Turdus plebejus, Cab. J. f. Orn. 1860, p. 323 [1]; Lawr. Ann. Lyc. N. Y. ix. p. 91 [2]; v. Frantz. J. f. Orn. 1869, p. 290 [3].

Sordide fuscus, supra parum olivascenti tinctus, subtus nisi hypochrondriis dilutior; subalaribus vix cervinis; rostro nigro, pedibus corylinis. Long. tota 10·5, alæ 5·5, caudæ 4·3, rostri a rictu 1·2, tarsi 1·3. (Descr. maris ex La Palma, Costa Rica. Smiths. Inst. no. 42804. Mus. nostr.)

Hab. Costa Rica [1], Dota, San José, La Palma (*v. Frantzius* [2]), Grecia, Cervantes (*Carmiol* [3]), Volcan de Cartago (*Rogers*).

This plain-coloured Thrush was first described by Dr. Cabanis from Costa-Rica specimens sent by Drs. v. Frantzius, Hoffmann, and Ellendorf to the Berlin Museum. Dr. v. Frantzius has since forwarded skins of it to the Smithsonian Institution; and other collectors in Costa Rica have also met with it, though it would appear to be not so common as some of its congeners. Dr. v. Frantzius tells us it is found in the forests of the mountainous parts of the country at an elevation of from 3000 to 6000 feet above the sea.

Turdus plebeius, though devoid of any striking characters in the markings of its plumage, is nevertheless a well-defined species, its nearest ally being *T. ignobilis* of Ecuador and Colombia. It has the bill black as in that species; and the throat is without the conspicuous patch of white which distinguishes *T. tristis* and its allies. It differs from *T. ignobilis* in its larger size, and in having the whole of the under plumage of the same dull grey-brown colour as the chest, these parts in *T. ignobilis* being nearly white. In his original description of the species, Dr. Cabanis compares *T. plebeius* with *T. amaurochalinus* (i. e. *T. leucomelas*), a bird of the same group as *T. ignobilis*; and this seems to us to be its proper position. The first primary is quite short, as in birds of that group; and the under wing-coverts have a rufous tinge. *T. nigrescens* and *T. chiguaco*, between which *T. plebeius* is placed in the 'Nomenclator Avium Neotropicalium,' have each of them a long first primary, and thus belong to a different section of the genus; and from their immediate vicinity we now think that *T. plebeius* ought to be removed.

10. Turdus grayi.

Turdus grayi, Bp. P. Z. S. 1837, p. 118[1]; Scl. 1859, pp. 362[2], 370[3]; Scl. & Salv. Ibis, 1859, p. 5[4]; Owen, Ibis, 1861, p. 60[5]; Scl. P. Z. S. 1864, p. 172[6]; Scl. & Salv. P. Z. S. 1864, p. 344[7], 1870, p. 836[8]; Salv. P. Z. S. 1867, p. 132[9], 1870, p. 180[10]; Ibis, 1866, p. 202[11], 1872, p. 314[12]; Baird, Rev. Am. B. p. 26[13]; Lawr. Ann. Lyc. N. Y. viii. p. 175[14], ix. pp. 91[15], 199[16]; Grayson, Mem. Bost. Soc. N. H. ii. p. 266[17]; Bull. U. S. Nat. Mus. no. 4, p. 11[18]; Pr. Bost. Soc. N. H. xiv. p. 276[19]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543[20]; v. Frantzius, J. f. Orn. 1869, p. 290[21].

Turdus tristis, Scl. P. Z. S. 1856, p. 294[22] (nec Swains.).

Turdus casius, Bp. Compt. Rend. xli. p. 657[23]; Lawr. Ann. Lyc. N. Y. vii. p. 326[24].

Turdus helvolus, Licht. Preis-Verz. Mex. Vög. (1830), cf. J. f. Orn. 1863, p. 57[25] (descr. nulla).

Supra ochraceo-fuscus unicolor; subtus cinnamomeus, gutture striolis fuscis notato; subalaribus læte cervinis; rostro fusco, pedibus corylinis. Long. tota 9, alæ 5, caudæ 4·2, rostri a rictu 1·1, tarsi 1·3. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Juv. supra dorsi plumis medialiter stricte cervinis, tectricibus alarum cervino terminatis; subtus plumis omnibus fusco transfasciatis. (Descr. maris juv. ex Costa Rica. Mus. nostr.)

Hab. Mexico, Tepic and Tres Marias Islands (*Grayson*[17 19]), Cordova (*Sallé*[22]), Jalapa (*Deppe*, *Mus. Berol.*[25]; *de Oca*[2]), Choapam and Villa Alta (*Boucard*[3]), State of Vera Cruz (*Sumichrast*[20]), Mirador (*Sartorius*[13]), valley of Mexico (*White*[6], *le Strange*), Santa Efigenia, Tehuantepec (*Sumichrast*[18]), Merida, Yucatan (*Schott*[16]); Guatemala[1], Dueñas[4], Escuintla, Retalhuleu, San Gerónimo[5], Tactic, Coban (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely*[8]); San Salvador, Acajutla (*J. M. Dow*[13]); Nicaragua, Chontales (*Janson*[12]); Costa Rica, San José and Barranca (*Carmiol*[13]), Quebrada Honda, Lepanto (*v. Frantzius*[21]), Volcan de Cartago (*Carmiol*); Panama, V. de Chiriqui (*Arcé*[10]), David (*Hicks*[12]), Chitra and Santa Fé (*Arcé*[9]), Lion Hill (*M'Leannan*[7 24]), Obispo (*O. S.*).—Colombia.

This well-known Central-American Thrush was first described by Bonaparte from Guatemalan specimens brought from that country by Col. Velasquez[1]. It had, however, been previously received in the Berlin Museum from Deppe and Schiede, who had procured examples during their travels in Mexico near Jalapa[24]. In his list of the birds collected by these travellers, Lichtenstein included this Thrush under the name of *Turdus helveolus*, but gave no description of it.

Turdus grayi is one of the commonest species of Thrush in Mexico and Central America, being found nearly everywhere in the hot and temperate districts from Tepic in the far north-west to Panama, and is a resident species wherever it occurs, except perhaps at the extreme north-western limits of its range. Grayson, to whom we are indebted for our knowledge of this district, says[19] that it is at times abundant in the winter months on the Tres Marias Islands, and that it is frequently found in the "tierra caliente" of the mainland, where he met with it breeding near Tepic in the month of May. He adds that it is gregarious and partially migratory. Prof. Sumichrast, who

found it in the State of Vera Cruz, says [20] that it is perhaps the most abundant of all the Mexican Turdidæ, that it is resident in the hot and temperate regions, but does not pass above an elevation of 4300 feet. He afterwards found it on the isthmus of Tehuantepec; but there it was not so common [18]. In Guatemala *Turdus grayi* is common in the neighbourhood of towns and villages up to an elevation of between 5000 and 6000 feet. It was found breeding in abundance in April and May near Dueñas, and also near San Gerónimo in Vera Paz. It is usually to be seen in the outskirts of plantations and in the orchards near houses, but not so much in the forest away from habitations. Its song is rich and of considerable compass, being quite equal to that of any of its congeners. Its powers of song make it a favourite cage-bird in Spanish and native houses. Dr. v. Frantzius, who seems to have been less favourably impressed with the song of *Turdus grayi* in Costa Rica than we were with it in Guatemala, says [21] that it is one of the commonest birds in Costa Rica, and that he met with it from the shores of the Gulf of Nicoya to places as much as 6000 feet above the sea, but that it is more rarely seen during the dry season than during the wet, at the commencement of which it breeds, and when its monotonous song may be heard everywhere from morning till night till it becomes wearisome. Its food in the dry season consists of the small fruits of the various species of *Ficus*, which at this time of year are found in great quantities.

Turdus grayi is subject to but slight variation in different parts of its wide range. The most noticeable divergence from the normal colour prevalent in Guatemala is to be seen in some specimens from Costa Rica and Panama, which are of a greyer tint; upon one of these Bonaparte seems to have founded his *T. casius* [23], a bird Mr. Lawrence was at one time disposed to admit as a species distinct from *T. grayi* [24]. But as these greyer birds are found with others of the normal colour, we think their claims to separation hardly established. In the neighbourhood of Santa Marta, in Colombia, a small race of *T. grayi* is found which is rather less cinnamon in tint than the usual form; it is also paler beneath. This race has been described by Bonaparte as *Turdus luridus*; but we do not think it ought to be admitted as specifically different from *T. grayi*.

In Guatemala Gray's Thrush builds in low bushes a nest of roots and fibres and small twigs, lining it with dry grass and fine roots. The eggs, usually three in number, are more or less covered with spots and blotches of red-brown on a ground of pale bluish green. One of them is figured in 'The Ibis' for 1859, t. v. f. 7. They measure 1·2 × ·8.

11. **Turdus obsoletus.**

Turdus obsoletus, Lawr. Ann. Lyc. N. Y. vii. p. 470 [1], ix. pp. 91 [2], 145 [3]; Baird, Rev. Am. B. p. 28 [4]; Salv. P. Z. S. 1867, p. 133 [5], 1870, p. 180 [6]; Ibis, 1869, p. 312 [7]; v. Frantzius, J. f. Orn. 1869, p. 290 [8].

Supra cinnamomeo-brunneus unicolor; subtus paulo dilutior, gutture striolis fuscis vix apparentibus, ventre

imo et crisso albis, subalaribus læte cervinis; rostro fusco-nigro, pedibus fuscis. Long. tota 9·0, alæ 4·9, caudæ 3·7, rostri a rictu 1·1, tarsi 1·2. (Descr. fem. ex Santa Fé, Panama. Mus. nostr.)

Juv. subtus paulo dilutior, pectoris plumis fusco maculatis, tectricibus alarum cervino terminatis. (Descr. av. juv. ex Costa Rica. Mus. nostr.)

Hab. Costa Rica [6], Cervantes (*Carmiol* [2], *M. L. Calleja* [3]), Orosi, Volcan de Poas (*v. Frantzius* [8]); Panama [4], Santa Fé (*Arcé* [5]), Lion Hill (*M'Leannan* [1]).

This Thrush, which seems to be the northern form of the South-American *Turdus fumigatus*, and still more nearly allied to the Amazonian *T. hauxwelli*, is distinguishable from both by the whiteness of the feathers of the middle of the abdomen and under tail-coverts, and from the former by its darker upper plumage. It was first described by Mr. Lawrence from a Panama specimen [1], whence we have also received examples [5], as well as from the neighbouring State of Costa, Rica [7], where Dr. v. Frantzius also found it, at Orosi, in February and on the Volcan de Poas in March [8]. At one time we supposed that, as the first specimens received were females, the males would prove to be dark-coloured [5], as the bird is not unlike the female of the South-American *Turdus serranus*, the male of which is black [7]. Mr. Lawrence, however [2], has always held to the belief that the sexes do not differ in *T. obsoletus*; and all subsequent specimens received tend to show that he is right in his opinion [7]. The name *obsoletus*, chosen for this Thrush, seems to have been suggested by the presence in the type specimen of spots on the greater wing-coverts, the remains of the immature plumage.

Turdus obsoletus appears to be nowhere common, and is confined in its range to the narrow tract of country between Costa Rica and the Isthmus of Darien.

12. **Turdus migratorius.** ✓

Turdus migratorius, Linn. Syst. Nat. i. p. 292 [1]; Licht. Preis-Verz. Mex. Vög. (1830), cf. J. f. Orn. 1863, p. 57 [2]; Scl. P. Z. S. 1856, p. 294 [3], 1858, p. 300 [4], 1859, p. 362 [5], 1864, p. 172 [6]; Salv. & Scl. Ibis, 1860, p. 396 [7]; Baird, Rev. Am. B. p. 28 [8]; Sumichrast, Mem. Bost. Soc. N. H. p. 543 [9]; Merrill, Pr. U. S. Nat. Mus. i. p. 118 [10].

Planesticus migratorius, Gundl. Orn. Cub. p. 58 [11].

Turdus migratorius, var. *migratorius*, Baird, Brew. & Ridg. N. Am. B. i. p. 25 [12].

Turdus (*Planesticus*) *migratorius*, Coues, B. Col. Vall. i. p. 8 [13].

Supra cinerascens, pileo, capitis lateribus et cauda nigricantibus; subtus castaneus, ventre imo et crisso albis, hoc fusco notato; gula alba nigro striolata; periophthalmio albo; rostro flavo apice corneo, pedibus corylinis. Long. tota 9·0, alæ 5·0, caudæ 3·7, rostri a rictu 1·1, tarsi 1·25. (Descr. maris ex La Parada, Mexico. Mus. nostr.)

Hab. N. America [1 10 12 13].—Mexico [2], Rotosinapam (*Sallé* [3]), La Parada (*Boucard* [4]), Jalapa (*de Oca* [5]), Mountains of Orizaba (*Sumichrast* [9]), Mirador (*Sartorius* [8]), Oaxaca (*Fenochio*), valley of Mexico (*White* [6], *le Strange*); Guatemala, Coban (*O. S.* [7]).—Cuba [11].

The American Robin is a common bird in Mexico, where it is found throughout the

highlands in the winter months, but where a considerable number remain to breed. In this respect the habits of the species are much the same as in the United States, a few birds being found nearly everywhere throughout the year. Prof. Sumichrast [9] considers *T. migratorius* to be a resident species in the alpine region of the State of Vera Cruz in Mexico, having found its young in July in numbers in the mountains of Orizaba at an elevation of about 8000 feet. It is one of the most abundant of the Thrushes, he says, in the alpine region, where it especially frequents the clearings and natural openings in the forests of pines, which it animates with its lively manners and the sweetness of its notes. Prof. Sumichrast only knew of a single instance of its occurrence near the city of Orizaba. The breeding of *Turdus migratorius* in Mexico is also confirmed by a skin of a bird in the first (spotted) plumage in our possession, which originally formed part of Mr. G. H. White's collection made in the vicinity of the city of Mexico itself [6], where also adults were obtained by Mr. le Strange.

The presence of *Turdus migratorius* in Guatemala is only known from a single skin having been obtained near Coban in January 1860 [7]. The occurrence of the species beyond Mexico must therefore be considered to be accidental.

A large flock of *T. migratorius* appeared in Cuba in 1860; so Dr. Gundlach tells us; but since then none have come under his notice [11]. It has not yet been observed in any other of the West-India Islands.

13. **Turdus flavirostris.** (Tab. III. fig. 1.)

Merula flavirostris, Sw. Phil. Mag. new ser. i. p. 369 [1].

Turdus flavirostris, Scl. P. Z. S. 1859, p. 332 [2]; Baird, Rev. Am. B. p. 31 [3]; Scl. & Salv. P. Z. S. 1870, p. 550 [4]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 276 [5]; Lawr. Mem. Bot. Soc. N. H. ii. p. 266 [6]; Bull. U. S. Nat. Mus. no. 4, p. 11 [7].

Turdus rufopalliatus, Lafr. Rev. Zool. 1840, p. 259 [8].

Turdus palliatus, Bp. Consp. i. p. 272 [9].

Pileo, capitis lateribus, collo postico, alis extus et uropygio schistaceis; dorso medio et alarum tectricibus oleagineo-rufis; subtus albus, pectore subalaribus et hypochondriis læte castaneis, gutture toto nigro distincte striolato; rostro et pedibus flavis. Long. tota 9·3, alæ 5·0, caudæ 4·2, rostri a rictu 1·0, tarsi 1·2. (Descr. fem. ex Plains of Colima, Mexico. Smiths. Inst. no. 30137. Mus. nostr.)

Hab. Mexico, Temascaltepec (*Bullock* [1]), Mazatlan, Tepic, Tres Marias Islands, Bendaras Bay (*Grayson* [5]), Colima (*Xantus*, *Grayson* [6]), San Juan del Rio (*Rébouch* [4]), Tehuantepec (*Xantus*, *Grayson*, *Sumichrast* [7]).

This species was first described by Swainson, in 1827, from a specimen sent from Mexico by Bullock [1], and said to have been obtained in the tablelands. This, however, is perhaps incorrect; for subsequent investigation tends to show that *Turdus flavirostris* is only found in the western parts of Mexico bordering the Pacific Ocean from Mazatlan to Tehuantepec. Here it has been met with by all the collectors who have visited that part of the country—Grayson, Xantus, and Sumichrast, and

also by M. Rébouch, a skin of whose preparation we have in our collection from San Juan del Rio.

Two other names have been applied to this Thrush. That of *Turdus rufopalliatus* [8], given to it by Lafresnaye, was based upon a specimen said to have come from Monterey, California; but this, as Prof. Baird has already pointed out [3], is an erroneous locality. So also, probably, is "Lower California," quoted by Mr. Sclater in his "Synopsis of the Thrushes of the New World" [2]. The name *Turdus palliatus* [9], used by Bonaparte, is simply a synonym of the present bird.

Grayson, to whom *Turdus flavirostris* was well known, says [5] [6] that it has the general appearance of *Turdus migratorius*, and that, like that bird, it is also partially migratory in its habits. It frequents the Tres Marias Islands in great numbers, and becomes excessively fat upon the berries which they find there in abundance. It breeds on these islands, and is found equally commonly on the mainland. Grayson further describes it as an inhabitant of woods and as gregarious in its habits, and says that in its migrations it passes from one part of the country to another in quest of the different kind of berries which are its chief subsistence.

The sexes of *T. flavirostris* are said to be almost alike.

Our figure is taken from one of Xantus's specimens from the Plains of Colima, which agrees with Swainson's type still extant in the Cambridge Museum.

C. Merula.

Sexus inter se dissimiles: mares nigri aut nigro varii; feminæ fuscæ aut fuscescentes.

14. **Turdus rufitorques.**

Turdus rufitorques, Hartl. Rev. Zool. 1844, p. 214 [1]; DuBus, Esq. Orn. tt. 19, 20 [2]; Scl. & Salv. Ibis, 1859, p. 6 [3], 1860, p. 29 [4]; Baird, Rev. Am. B. p. 32 [5].

♂ niger, mento albo; gula nigro striolata; pectore toto et cervice undique læte castaneis; subalaribus fusco-nigris; rostro flavo, pedibus corylinis. Long. tota 9·0, alæ 5·3, caudæ 4·0, rostri a rictu 1·1, tarsi 1·3. (Descr. maris ex Quezaltenango, Guatemala. Mus. nostr.)

♀ fusca, gula striata, pectore et torque obscurius castaneis quam in mare; rostro flavido, pedibus fusco-corylinis. (Descr. fem. ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Guatemala [1], Dueñas [2], Calderas [3], Volcan de Fuego (10,000 to 12,000 feet), Godines [2], Quezaltenango, Cordillera above Totonicapam (10,500 feet), Chilasco, Tactic (*O. S. & F. D. G.*).

Dr. Hartlaub was the first ornithologist to describe this Thrush, from specimens obtained in Guatemala [1]; it was soon afterwards figured by Vicomte DuBus in his 'Esquisses Ornithologiques' [2]; and from that time specimens of it have been occasionally sent to Europe by Constancia and others.

Turdus rufitorques is rather local in its distribution in Guatemala, though its range extends over a considerable area in that country. It has, too, a great range in altitude,

being found below 5000 feet, both near Dueñas and at Tactic in Vera Paz, and also occurring in some numbers in the pine-forests of the summit of the Volcan de Fuego, as high as 12,000 feet, and in the main Cordillera above Totonicapam at a height of 10,500 feet. It does not seem to be found only in one class of forest; for the plains near Dueñas, where *Ipomœa murocoides* abounds, the oak-forests of the volcano, and the pine-forests of the upper parts, the pine-tracts of Quezaltenango and Totonicapam, and the forests it frequents in Vera Paz are each very different in character. It, however, is not so much an inhabitant of the belt of dense forest of mixed trees which surrounds the volcano between 7000 and 10,000 feet; and it is altogether absent from the forests of the hotter parts of Guatemala, which lie below 4000 feet.

We never found *Turdus rufitorques* breeding; but as birds were observed about Dueñas and Quezaltenango in the month of August, it is probable that they had built in the vicinity of those places. It is not, however, a migratory species, except, perhaps, in a very limited sense.

The habits of *T. rufitorques* recall those of *T. merula*. It is rather shy, generally keeping out of gunshot. Its powers of song are not remarkable, and are certainly inferior to those of *T. grayi*.

The curious rufous ring which surrounds the neck of this Thrush recalls the similar feature in the plumage of *T. albicincta* of the Himalayas. The American bird, however, is of not nearly so robust a form as the Asiatic species; and there are other differences between them.

15. Turdus pinicola.

Turdus pœcilopterus, Licht. Mus. Berol. (fide Sclater), nec Nomencl. Av. p. 25.

Turdus pinicola, Scl. P. Z. S. 1859, pp. 334[1], 362[2], 1860, p. 250[3], 1864, p. 172[4]; Cat. Am. B. p. 6, pl. 1[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543[6].

♂ fusco-niger, capitis et dorsi plumarum scapis brunneis; alarum tectricibus majoribus fumido albo late limbatis, primariorum parte basali extus et intus macula magna alba occupata, apicibus eorum et secundariorum grisescenti-albo terminatis; primariis tertio, quarto et quinto extus macula alba apicem versus ornatis, secundariis medialiter albo extus marginatis; cauda nigra, hujus tectricibus superioribus et rectricum apicibus albis; abdomine cum crisso et tectricibus alarum inferioribus albis; rostro nigro, pedibus flavis. Long. tota 8·5, alæ 5·3, caudæ 3·4, rostri a rictu 1·0, tarsi 1·1. (Descr. exempl. ex Mexico. Mus. nostr.)

♀ brunnescentior, coloribus dilutioribus, gutture et pectore toto brunneis colore pallidiore marmoratis. (Descr. fem. ex Jalapa. Mus. P. L. S.)

Juv. supra capitis et dorsi plumis late ochraceis, dorsi postici ferrugineis; subtus flavidus plumis singulis nigro marginatis. (Descr. juv. ex Oaxaca. Mus. nostr.)

Hab. Mexico, Jalapa (*de Oca*[1]), Orizaba (*Sallé*[3]), valley of Mexico (*White*[4], *le Strange*), Moyoapam (*Sumichrast*[6]), Oaxaca (*Fenochio*).

Though specimens of *Turdus pinicola* seem to have been in the Berlin Museum for some years, under the unpublished name of *T. pœcilopterus*, no published name was given

to the bird until Mr. Sclater described it, in 1859, from specimens obtained near Jalapa, in Mexico, by Señor de Oca, who found a pair on the highland, amongst the pines [1]. Other collectors have since met with it in similar localities [2 3 4]; but it would appear to be a rare species, of very restricted range. It only once came under Prof. Sumichrast's notice, when he found it at Moyoapam [6], in the pine-woods north of the valley of Orizaba, at a height of about 8400 feet above the sea.

The singular variegated plumage of this species renders it easily distinguishable from all other American species. The only Thrush that at all approaches it in this respect is *Turdus nævius*, a bird which Prof. Baird places in a separate subgenus, *Hesperocichla*, from the rest of the Thrushes, and in which Mr. Seebohm has found characters in common with the Asiatic genus *Geocichla* and also with *Oreocincla*.

16. **Turdus infuscatus.**

Merula infuscata, Lafr. Rev. Zool. 1844, p. 41 [1].

Turdus infuscatus, Scl. & Salv. Ibis, 1859, p. 6 [2]; Scl. P. Z. S. 1859, pp. 334 [3], 362 [4], 370 [5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543 [6].

♂ niger unicolor, rostro et pedibus flavis. Long. tota 8·7, alæ 4·9, caudæ 3·8, rostri a rictu ·95, tarsi 1·15. (Descr. maris ex Coban, Guatemala. Mus. nostr.)

♀ brunnescens, subtus dilutior, gutture striato, subalaribus rufis; rostro fusco, pedibus flavis. (Descr. fem. ex Jalapa, Mexico. Mus. P. L. S.)

Juv. brunneus, abdomine dilutiore et fusco maculato, tectricibus alarum fulvo terminatis. (Sp. ex Guatemala. Mus. nostr.)

Hab. MEXICO, Jalapa (*de Oca* [3 4]), Totontepec (*Boucard* [5]), mountains of Orizaba (*Sumichrast* [6]); GUATEMALA [2], Coban, ridge above S. Gerónimo, Quezaltenango (*O. S. & F. D. G.*).

Turdus infuscatus was originally described by the late Baron Lafresnaye [1], whose type we have examined, from a Mexican specimen; and several more recent explorers have found it in that country [4 5]. Prof. Sumichrast gives as its habitat, in the State of Vera Cruz [6], the temperate and alpine regions, and says that in the lower part of the alpine and the upper and wooded part of the temperate is the favourite resort of this Thrush. He adds that it is quite common in these localities at the foot of the mountains, at elevations of from 4200 to 8400 feet above the sea.

In Guatemala it is by no means a common bird; but we met with it more frequently near Coban, in Vera Paz, than elsewhere. Here it was usually found in the patches of older forest which clothe the summits of the curious conical hills which so abound in this district. A young specimen in our collection most probably came from near Coban, proving that *T. infuscatus* is a resident species, as we also observed it in November and January, a season at which the bird would not be breeding. Our specimens were all obtained near Coban; for, though we observed this Thrush in the forest of the mountain ridge above San Gerónimo, and at Quezaltenango, near enough to

recognize it with certainty, no birds were obtained. Its note much resembles that of *Turdus merula*.

No true Blackbird is found in Costa Rica; but in the Andes of South America, and in the West-Indian island of Tobago, a second species, *Turdus serranus*, is commonly met with. The close relationship of this species and *T. infuscatus* to the Old-World *T. merula* is a curious fact of geographical distribution, and probably indicates the remains of a much wider dissemination of the ancestral *T. merula* in past times, or that a Blackbird inhabiting the high north has been pushed southwards in both America and the Old World by advancing cold, and that, in America at least, these birds have not followed the returning warmth, but have sought a congenial home in the mountains of the south.

D. Semimerula.

Major: ptilosis fere unicolor, fusca aut fusco-nigra. Sexus similes.

17. **Turdus nigrescens.** (Tab. IV.)

Turdus nigrescens, Cab. J. f. Orn. 1860, p. 324[1]; Lawr. Ann. Lyc. N. Y. ix. p. 91[2]; v. Frantz. J. f. Orn. 1869, p. 290[3]; Salv. P. Z. S. 1870, p. 180[4].

Brunnescenti-nigrescens, alis et cauda nigricantioribus; subtus paulo dilutior; rostro aurantiaco, pedibus flavis. Long. tota 10·0, alæ 5·5, caudæ 4·5, rostri a rictu 2·2, tarsi 1·4. (Descr. exempl. ex S. Francisco, Costa Rica. Mus. nostr.)

Juv. subtus gula et pectore cervinis nigro maculatis; dorsi plumis medialiter cervino notatis. (Descr. av. juv. ex Volcan de Cartago. Mus. nostr.)

Hab. Costa Rica, Volcan de Cartago (*Hoffmann*, *v. Frantzius*, *Arcé*, *J. Cooper*), Dota Mountains (*Carmiol*), San Francisco (*Rogers*); Panama, Volcan de Chiriqui (*Arcé*).

Turdus nigrescens was first described by Dr. Cabanis from specimens obtained by Dr. Hoffmann in the Volcan de Cartago [1], and, Dr. v. Frantzius tells us, it is found in this volcano at an elevation of from 9000 to 10,000 feet above the sea [3]. This mountain seems to be the head quarters of the species in Costa Rica, as all collectors who have worked there have obtained specimens. It is, however, also found in the Dota Mountains, which lie at no great distance from Cartago. The only other locality in which it has been obtained is the volcano of Chiriqui, whence several specimens have been sent us by Arcé [4].

This Thrush seems to belong to a South-American section of the genus, found in the Andes from Colombia to the neighbourhood of Mendoza, the best-known species of which is *Turdus gigas*. It is, however, a well-marked species, and only remotely allied to its next of kin. The sexes present scarcely any difference in plumage.

Subfam. *MIMINÆ.*

GALEOSCOPTES.

Galeoscoptes, Cabanis, Mus. Hein. i. p. 82 (1851). (Type *Muscicapa carolinensis*, Linn.)

The single species of this genus is a winter immigrant to Central America. In Mexico and Guatemala it is abundant, but, in the latter country, only in the eastern parts. Southwards of Guatemala it is by no means common; but it has been traced as far as Panama.

1. Galeoscoptes carolinensis.

Musicapa carolinensis, Linn. Syst. Nat. i. p. 328[1].
Turdus carolinensis, Licht. Preis-Verz. mex. Vög. (1830), cf. J. f. Orn. 1863, p. 57[2].
Mimus carolinensis, Scl. P. Z. S. 1856, p. 294[3].
Galeoscoptes carolinensis, Cab. Mus. Hein. i. p. 82[4]; Scl. P. Z. S. 1859, pp. 362[5], 370[6]; Scl. & Salv. Ibis, 1859, p. 7[7]; P. Z. S. 1867, p. 278[8], 1870, p. 836[9]; Baird, Rev. Am. B. p. 54[10]; Lawr. Ann. Lyc. N. Y. ix. p. 204[11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[12]; Gundl. Orn. Cub. p. 59[13]; Baird, Brew. & Ridgw. N. Am. B. i. p. 52[14]; Merrill, Pr. U. S. Nat. Mus. i. p. 120[15].
Mimus (*Galeoscoptes*) *carolinensis*, Coues, B. Col. Vall. i. p. 56[16].

Plumbeus; subtus dilutior, pileo et cauda nigris; crisso ferrugineo; rostro nigro, pedibus brunneis. Long. tota 7·7, alæ 3·6, caudæ 3·8, rostri a rictu ·9, tarsi 1·1. (Descr. maris ex Belize, Brit. Honduras. Mus. nostr.)

Hab. N. America, north to Lake Winnipeg and west to the head of the Columbia river and the Cascade Mountains[14], Texas[15].—Mexico, Cordova (*Sallé*[3]), Jalapa[4] (*de Oca*[5]), Totontepec and Playa Vicente (*Boucard*[6]), Orizaba (*Sumichrast*[12]), Mirador (*Sartorius*[10]), Merida, Yucatan (*Schott*[11]); Guatemala, Coban, Choctum, Rio de la Pasion, Cahabon, Barranco Hondo (*O. S. & F. D. G.*); British Honduras, Belize (*O. S.*[7]); Honduras, San Pedro (*G. M. Whitely*[9]); Nicaragua, Blewfield's River (*Wicklam*[8]); Panama, Frijole Station (*M'Leannan*[10]).—Cuba[13]; Bahamas[14].

The Cat-bird, by which name *Galeoscoptes carolinensis* is familiarly known in the United States, is a winter visitant to Mexico and Central America, retiring northwards in the summer to breed. Though found over a wide extent of country during the winter months, it is by no means universally distributed, as we have hardly a trace of its occurrence on the Pacific side of any portion of the country of which we are now treating. In Mexico it has been only found in the south-eastern parts of the country, in the State of Vera Cruz and on the borders of the State of Oaxaca; but it is absent from the whole Pacific side from Mazatlan to Tehuantepec. Present apparently in some numbers in Yucatan, it is found near Belize and on the shores of the Gulf of Honduras to Omoa and San Pedro. Further in the interior it spreads over the forest

country to the mountains of Alta Vera Paz, and there ascends to the vicinity of Coban, where it is very common in winter at an altitude of from 4000 to 5000 feet above the sea. In the more southern parts of Guatemala we have only once met with it, a specimen having been obtained on October 22nd, 1873, by an Indian hunter near Barranco Hondo on the slope of the mountains between the Volcanoes of Agua and Fuego at an elevation of nearly 4000 feet. Southwards of Honduras we have only two records of it—one from the Blewfields river, and another from the Panama Railway. The last record is not in Mr. Lawrence's Catalogue of Panama birds, but rests on a specimen sent from Frijole Station by M'Leannan to the Smithsonian Institution.

In Cuba *G. carolinensis* is a common bird in winter[13].

The habits of the species in the United States are fully given by Baird, Brewer, and Ridgway, and also by Dr. Coues. In Guatemala, as might be expected, the bird does not sing, but passes a retired life in the second-growth woods and about the edges of clearings. Our specimens were all obtained in the autumn and winter months, between October and February.

MELANOPTILA.

Melanoptila, Sclater, P. Z. S. 1857, p. 275. (Type *Melanoptila glabrirostris,* Scl.)

A peculiar genus of very restricted range, being only found as yet on the coast of the Gulf of Honduras and the coral islands which line the shore. It is quite probable that its range extends both northwards along the coast of Yucatan and also eastwards to Cape Gracias a Dios, tracts as yet ornithologically unexplored.

The name *glabrirostris*, chosen by Mr. Sclater for the single species, was suggested from no rictal bristles being observed in the specimens he examined. In all of our examples, however, they are fairly well defined.

1. **Melanoptila glabrirostris.** (Tab. III. fig. 2.)

Melanoptila glabrirostris, Scl. P. Z. S. 1857, p. 275[1]; Scl. & Salv. Ibis, 1859, p. 7[2]; Moore, P. Z. S. 1859, p. 55[3]; Salv. Ibis, 1864, p. 380[4]; Baird, Rev. Am. B. p. 55[5].

Sericeo-purpurascenti-nigra, alis et cauda magis chalybeo tinctis; rostro et pedibus nigerrimis. Long. tota 7·5, alæ 3·6, caudæ 3·5, rostri a rictu 1·0, tarsi 1·15. (Descr. maris ex Half-moon Cay, British Honduras. Mus. nostr.)

Hab. British Honduras, Lighthouse and Glover's Reefs (*O. S.*[4]), Corosal (*Roe*); Honduras (*Delattre*[1]), Omoa (*Leyland*[1 2 3]).

This interesting species was first described by Mr. Sclater from specimens in the Derby and British Museums, obtained by the French collector Delattre somewhere in Honduras, and from one in his own collection brought home by Mr. Joseph Leyland from the vicinity of Omoa[1]. Mr. Leyland was not able to give much information respecting the bird, as only one other individual came under his notice.

Melanoptila glabrirostris was a much wished-for species that long eluded our observation in Guatemala; and it was not until the early part of May 1862 that it was at last found to be not uncommon on some of the islands of the outermost of the coral reefs which line the coast of British Honduras. Several specimens were obtained on Half-moon Cay on Lighthouse reef; and it was observed on Northern two Cays, Long Cay and Middle Cay (islands of the same reef), and also on Glover's reef, which lies to the southward of Lighthouse reef. In its actions and flight *M. glabrirostris* much resembles a Mocking-bird (*Mimus*); and it has a short but sweet song. It is said to lay blue eggs; so that Mr. Sclater's suggestion as to the position of the species amongst the Mocking-birds seems to be correct, and the genus may be placed next to *Galeoscoptes*, from which it mainly differs in the colour and texture of its plumage.

Since our specimens were obtained we have received two examples from the neighbourhood of Corosal on the mainland of British Honduras. These were sent home in spirits by Mr. Roe in a small collection of birds from that place.

MELANOTIS.

Melanotis, Bonaparte, Consp. Av. i. p. 276 (1850); Baird, Rev. Am. B. i. p. 56. (Type *Orpheus cærulescens*, Sw.)

A genus of two species peculiar to Mexico and the highlands of Guatemala, each district having a species to itself. Prince Bonaparte first removed the Mexican species from the genus *Orpheus* (vel *Mimus*), in which Swainson had placed it, and made a new genus, *Melanotis*, for its reception, giving, however, no characters. This deficiency has been supplied by Prof. Baird, who has fully described the external form. *Melanotis* seems most nearly allied to *Galeoscoptes* and *Melanoptila*, having, however, several characters by which it may be recognized. The young of *Melanotis*, as shown by examples of young *M. hypoleucus*, have the back unspotted in the first plumage—a fact which may help to determine the position of the genus and its allies at some future day.

1. Melanotis cærulescens.

Orpheus cærulescens, Swains. Phil. Mag. new ser. i. p. 369[1].

Mimus cærulescens, Scl. P. Z. S. 1856, p. 294[2].

Melanotis cærulescens, Scl. P. Z. S. 1859, pp. 362[3], 370[4]; Baird, Rev. Am. B. p. 56[5]; Grayson, Proc. Bost. Soc. N. H. xiv. p. 275[6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 266[7]; Bull. U.S. Nat. Mus. No. 4, p. 12[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543[9].

Turdus melanotis, Temm. Pl. Col. 498[10].

Turdus erythrophthalmus, Licht. Preis-Verz. mex. Vög. p. 2 (1830), cf. J. f. Orn. 1863, p. 57[11].

Schistaceo-cærulescens; capitis lateribus, loris et gula nigris; gutturis plumis elongatis, rostro et pedibus nigris. Long. tota 10·5, alæ 4·5, caudæ 5·2, rostri a rictu 1·3, tarsi 1·2. (Descr. exempl. ex Jalapa, S. Mexico. Mus. nostr.)

Hab. Mexico[1 10], Mazatlan, Tepic (*Grayson*[6 7]), Tres Marias Is. (*Grayson*[6 7]), plains of Colima (*Xantus*[7]), Sierra Madre near Zapotitlan (*Sumichrast*[8]), Oaxaca (*Fenochio*), Talea, Juquila, Villa Alta, and Totontepec (*Boucard*[4]), Jalapa (*Deppe*[11], *de Oca*[3]), Temascaltepec (*Deppe*[11]), Cordova (*Sallé*[2]), State of Vera Cruz (*Sumichrast*[9]), Orizaba (*le Strange*), Mirador (*Sartorius*[5]).

A specimen from Bullock's Mexican collection, still extant in the Cambridge Museum, formed the basis of Swainson's description of *Orpheus cærulescens*, published in 1827[1]. The same species was afterwards described by Temminck as *Turdus melanotis* in 1830[10]; and in the same year Lichtenstein bestowed the title of *Turdus erythrophthalmus* upon specimens in the Berlin Museum obtained at Jalapa and Temascaltepec by Deppe[11]. The species has now been long known under Swainson's name.

Melanotis cærulescens is widely dispersed in Mexico, being found from Mazatlan to Tehuantepec. Except in the far north-western part of its range, it is usually an inhabitant of the temperate region; but in the State of Vera Cruz, according to Prof. Sumichrast[9], it passes beyond these limits into the hot region and into the alpine region as high as 4300 feet. Grayson, who found it at the sea-level in the Tres Marias Islands, gives the following account of its habits there:—

"One of the most abundant as well as interesting song-birds of the Marias. They are tame and confiding, allowing persons to approach very near them, often following me in the woods, evincing considerable curiosity, and uttering mimicking cries, and occasionally breaking out into the richest song, awaking the echoes of the silent woods. Like the true Mocking-bird (*Mimus polyglottus*), this bird is solitary in its habits, showing great aversion to the companionship of its own species; and combats between them are very frequent. The notes of this bird are full and melodious; at all seasons of the year the woods are enlivened by its mellow song; and during the spring, or love-season, it is particularly so. They make excellent cage-birds, are easily kept, and soon become reconciled to their prison, even when taken at an adult age.

"They inhabit the densest forests and thickets, spending much of their time upon the ground, turning up the leaves with their bills in search of insects."

2. **Melanotis hypoleucus.**

Melanotis hypoleucus, Hartl. Rev. Zool. 1852, p. 460[1]; Scl. P. Z. S. 1859, p. 337[2]; Scl. & Salv. Ibis, 1859, p. 7[3], 1860, p. 29[4]; Ex. Orn. p. 85, t. 43[5]; Baird, Rev. Am. B. p. 57[6].

Schistaceo-cærulescens, capitis lateribus nigris; subtus nisi crisso et hypochondriis albus; rostro et pedibus nigris. Long. tota 10·5, alæ 4·3, caudæ 5·0, rostri a rictu 1·35, tarsi 1·3. (Descr. exempl. ex San Gerónimo, Vera Paz. Mus. nostr.)

Juv. plumis corporis subtus fusco-nigro et albo commixtis, rostri mandibula flava. (Descr. juv. ex Dueñas, Guatemala. Mus. nostr.)

Hab. Guatemala[1], Dueñas[3 4 5], Godines, San Gerónimo, Coban (*O. S. & F. D. G.*).

This species was first described in 1852 by Dr. Hartlaub, from a specimen sent to the Hamburg Museum by M. Gadechens[1]; and since that time numerous examples have been transmitted to Europe, most of them from the vicinity of Coban, in Vera Paz. *Melanotis hypoleucus* is a common bird in the neighbourhood of Dueñas, where it is resident throughout the year. It frequents the thick bushes and underwood on the banks of the Rio Guacalate and the borders of the open land near Dueñas. It is a shy bird, skulking to elude observation, and never flying far in the open. During the greater part of the year its song is rather disjointed and short; but as the breeding-season approaches in May and June it improves, and is then of fair quality, containing a few rich notes. The breeding-season would seem to spread over a considerable period. We found nests with eggs about the end of May; two months later, on the 23rd July, a young bird was shot that had just left the nest; and in the middle of September another young bird was obtained, hardly more advanced than the first. The nest, which is usually placed in a thicket, about 9 or 10 feet from the ground, is a very slight structure, composed of small twigs and lined with fine roots. The usual complement of eggs is three; these are of a uniform greenish-blue colour, and rather elongated in shape, measuring 1·17 inch by ·8. The food of *M. hypoleucus* consists chiefly of berries; but as it is also frequently in the habit of scratching about the roots of trees and among dead leaves, insects and their larvæ are probably included in its diet.

Melanotis hypoleucus, though restricted in its range to Guatemala, is a well-known and common bird in the highlands of that country. The lowest district where we met with it was the neighbourhood of San Gerónimo in the plain of Salamá, which lies at an elevation of about 3000 feet above the sea. Near Coban, at an altitude of about 4500 feet, it is also common. Of its abundance at Dueñas (altitude 4900 feet) we have already spoken. It was also observed in some numbers on the road which skirts the north side of the Lake of Atitlan, near Godines, at a height of not less than 7000 feet above the sea. It will thus be seen that *M. hypoleucus* has, as a rule, a much more elevated range than its congener *M. cærulescens*, which is found at the sea-level in some parts of Mexico.

HARPORHYNCHUS.

Toxostoma, Wagler, Isis, 1831, p. 528 (nec Rafin.). (Type *Orpheus curvirostris*, Sw.)
Harpes, Gambel, Pr. Ac. Phil. 1845, p. 264 (nec Goldfuss). (Type *Harpes redivivus*, Gamb.)
Harporhynchus, Cabanis, Arch. f. Nat. xiii. p. 323 (1847).

This peculiar genus consists of about eight or nine well-marked species, several of which have been subdivided into geographical races or varieties. The head quarters of the genus seems to be the basin of the Colorado, outlying species being found in Lower California (*H. cinereus*), the Eastern States (*H. rufus*), and in the coast region of Cali-

fornia (*H. redivivus*). In Mexico, too, we find three species, two of which, *H. curvirostris* and *H. longirostris*, have a wide range, the third, *H. ocellatus*, being restricted to the State of Oaxaca. The fourth species found in our region is peculiar to the island of Socorro.

The genus has been carefully studied by Dr. Coues, who has written several papers on the subject. His latest views will be found in his recently published 'Birds of the Colorado Valley.'

Though placed in the Turdidæ by many systematists, the position of *Harporhynchus* there is by no means assured. The short rounded wings of all the species, their scutellated tarsi, and peculiar curved bills are not at all Thrush-like, and point rather to the Troglodytidæ, in which family they have been placed by Prof. Cabanis. A close examination of the internal structure of some member of the genus alone can afford good grounds for settling the point.

Besides the four species mentioned below, two others, *H. lecontii* and *H. crissalis*, occur on our frontier in the valley of the Gila, and may be found to pass to the Mexican side. An account of both these birds will be found in Dr. Coues's work already referred to.

1. Harporhynchus longirostris.

Orpheus longirostris, Lafr. Rev. Zool. 1838, p. 54[1].
Mimus longirostris, Scl. P. Z. S. 1856, p. 294[2].
Harporhynchus longirostris, Scl. P. Z. S. 1859, p. 362[3], 1864, p. 172[4]; Baird, Rev. Am. B. p. 44[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543[6].
Harporhynchus rufus, var. *longirostris*, Baird, Brew. & Ridgw. N. Am. B. i. p. 39[7]; Merrill, Pr. U. S. Nat. Mus. i. p. 119[8].
Harporhynchus rufus, b. *longirostris*, Coues, B. Col. Vall. i. p. 63[9].
Harporhynchus rufus longirostris, Sennett, Bull. U. S. Geol. Surv. iv. p. 3[10].

Supra sordide castaneus, pileo paulo fuscescentiore; alarum tectricibus albo terminatis, macula subapicali nigra; subtus albus, cervice lateribus, pectore, hypochondriis et crisso nigro longitudinaliter striatis; gula et ventre imo immaculatis; rostro et pedibus obscure corylinis. Long. tota 9·5, alæ 3·8, caudæ 4·9, rostri a rictu 1·4, tarsi 1·4. (Descr. exempl. ex S. Mexico. Mus. nostr.)

Hab. N. America, valley of the Rio Grande, Texas[7].—Mexico[1], Jalapa (*Deppe, Mus. Berol.*), Cordova (*Sallé*[2]), Jalapa (*de Oca*[3]), Orizaba (*Sumichrast*[6]), Mirador (*Sartorius*[5]), valley of Mexico (*White*[4]).

The position of this Mocking-bird in its relationship to the well-known *Harporhynchus rufus* of the Eastern States of America has long been a matter of doubt, most American authors[7 8] considering it to be a local form of that species, which no doubt it is, differing in the duller tint of the upper plumage, and in the greater curvature of the bill, in its darker cheeks, and the larger size and closer arrangement of the spots on the breast and

flanks. These points of distinction are not difficult to recognize; and as they appear to be strictly associated with a definite area, the use of a distinct name for the bird seems to be justified. The best accounts of *Harporhynchus longirostris* are those given by Dr. Merrill [8] and Mr. Sennett [10], who both observed it in considerable numbers on the Texan side of the valley of the Rio Grande, where it is a resident bird. The habits of the species are fully described by these authors in their respective papers.

Several years before Lafresnaye described the bird [1] Deppe met with it at Jalapa; and his specimens are still in the Berlin Museum. Most of the more recent collectors have since met with it in the same district; and Prof. Sumichrast [6] says that it is quite common in the temperate region in the vicinity of Orizaba, ranging from an elevation of 3300 feet to 6600 feet above the sea. We have no record of the occurrence of the bird in any part of Western Mexico; and its range seems to be strictly confined to the eastern part of the country, from the valley of the Rio Grande on the north to the State of Vera Cruz on the south.

2. **Harporhynchus ocellatus.**

Harporhynchus ocellatus, Scl. P. Z. S. 1862, p. 18, t. iii.[1]

Supra fusco-cinereus; alarum tectricibus albo terminatis; caudæ rectricibus, præter quatuor medias, albo stricte terminatis; subtus albus, pectore et hypochondriis maculis rotundatis nigris conspicue notatis; gula et abdomine medio immaculatis; hypochondriis et capitis lateribus paulo rufescenti tinctis; rostro nigro, pedibus corylinis. Long. tota 11·5, alæ 4·1, caudæ 5·5, rostri a rictu 1·5, tarsi 1·5. (Descr. maris ex Oaxaca, Mexico merid. Mus. nostr.)

Hab. Mexico, Oaxaca (*Boucard* [1], *Fenochio*).

Of this species hardly any thing is known. It was described from a single male specimen sent by M. Boucard from the neighbourhood of Oaxaca; and from the same district we have received another bird of the same sex from Don A. Fenochio. No account has reached us of its habits. The species is a well-marked one, as Mr. Sclater says [1], the large round black spots on the clear white under surface rendering it easily distinguishable from every known member of the group.

3. **Harporhynchus curvirostris.**

Orpheus curvirostris, Swains. Phil. Mag. new ser. i. p. 369 [1].

Toxostoma curvirostre, Scl. P. Z. S. 1857, p. 212 [2].

Harporhynchus curvirostris, Scl. P. Z. S. 1859, p. 370 [3]; Baird, Rev. Am. B. p. 45 [4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543 [5]; Lawr. Mem. Bost. Soc. N. H. ii. p. 267 [6]; Lawr. Bull. U. S. Nat. Mus. No. 4, p. 12 [7]; Sennett, Bull. U. S. Geol. Surv. iv. p. 4 [8]; Merrill, Pr. U. S. Nat. Mus. i. p. 119 [9].

Turdus deflexus, Licht. Preis-Verz. mex. Vög., cf. J. f. Orn. 1863, p. 57 [10].

Pomatorhinus turdinus, Temm. Pl. Col. 441 [11].

Toxostoma vetula, Wagl. Isis, 1831, p. 528 [12].

Supra fusco-cinereus, campterio et tectricum alarum apicibus albis; subtus sordide albus, pectore fusco-cinereo variegato, hypochondriis eodem colore suffusis; caudæ rectricibus (nisi quatuor internis) præcipue in pogonio interno albo terminatis; rostro nigro, pedibus obscure fuscis. Long. tota 9·7, alæ 4·5, caudæ 4·5, rostri a rictu 1·4, tarsi 1·35. (Descr. exempl. ex Mexico merid. Mus. nostr.)

Hab. NORTH AMERICA, southern frontier of United States [4].—MEXICO Tableland (*Bullock* [1]), Mazatlan (*Xantus* [6], *Bischoff* [6]), Tepic (*Grayson* [6]), Tamaulipas (*Couch* [4]), Mountains of Colima (*Xantus* [4]), Temascaltepec (*Deppe*, *Mus. Berol.*), Orizaba (*Botteri* [2]), Oaxaca (*Boucard* [3]), Tehuacan (*Sumichrast* [7]), Cuernavaca (*le Strange*).

Originally described by Swainson from a specimen obtained by Bullock in the table-land of Mexico [1], *Harporhynchus curvirostris* has since been met with by nearly every collector who has worked in Southern Mexico; and the bird seems to be common from the State of Oaxaca, where M. Boucard found it [3], northwards to the valley of the Rio Grande and Texas [8 9], extending also along the western coast through the mountains of Colima [6] to Mazatlan [6]. Prof. Sumichrast never met with it except on the plateau of Mexico, and omits the name of the species from his list of the birds of Vera Cruz, stating that the localities cited in that State, where the species is said to have been found, may be erroneous [5].

We have no record of the habits of the species in Mexico; but in Texas, where it came under the observation of both Dr. Merrill [8] and Mr. Sennett [8], it is described as a bird of very retiring disposition and of no great powers as a songster.

In Mexico Prof. Baird speaks of the western specimens having heavier and thicker bills and stouter legs than eastern birds, but does not attach much importance to the fact. In Arizona a race occurs which has received the distinct title of *H. palmeri*, but which is apparently only imperfectly separated from the typical form.

Of the names proposed for this species subsequently to Swainson's, *Turdus deflexus* of Lichtenstein [10] seems, by the light of specimens in the Berlin Museum, to be certainly applicable to *H. curvirostris*.

Pomatorhinus turdinus, given to it by Temminck [11], was applied to a bird said to have come from New Holland! No such species has ever been recognized in Australia; and the plate is a fair representation of *H. curvirostris*.

Wagler's name *Toxostoma vetula* [12] has always been a recognized synonym of this species, and was suspected to apply to the same bird as Swainson's title by Wagler himself. This latter writer considers it to be the Chietottotl of Hernandez.

4. Harporhynchus graysoni.

Harporhynchus graysoni, Lawr. Ann. Lyc. N. Y. x. p. 1[1]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 298[2]; Lawr. Mem. Bost. Soc. N. H. ii. p. 267[3].

"*Male.* Above of a rather dirty reddish-brown, the front paler, a blackish spot in front of and under the eye; chin, upper part of throat and sides of the head pale ochreous, the latter marked with faint dusky

bars; tail dark liver-brown, the outer three feathers with a greyish spot on the inner web at the end; quills of the same colour as the tail, the larger ones narrowly edged with dull white, the others with dull pale rufous; the entire under plumage is pale yellowish fulvous, sides darker, with longitudinal brown stripes; bill black; tarsi and toes blackish-brown. Length (fresh) $11\frac{1}{2}$ inches, wing $4\frac{1}{4}$, tail $5\frac{1}{4}$, bill $\frac{3}{4}$, tarsi $1\frac{3}{8}$."—*Lawrence, l. s. c.*

Hab. Mexico, Socorro Island (*Grayson* [1]).

Of this species, which Mr. Lawrence[1] says is so distinct from all others of the genus that no comparisons are necessary, we have never seen specimens. From the description it would seem to be allied to the *H. redivivus* section of the genus, in which the plumage is unspotted. Grayson, to whom the credit of the discovery of the species is due, found it during his expedition to the island of Socorro, and in his paper on the birds of that island has given the following note respecting it[2]:—

"Not very abundant, but seems to be well distributed over the island. It has all the characteristics of the true Mocking-bird in its habits (*Mimus polyglottus*). Of solitary disposition, it attacks every bird of its own species that approaches its usual haunts.

"One took up its quarters in our camp, and was certainly the tamest bird of this genus I ever saw; he appeared to take pleasure in our society, and attacked furiously every bird that came near us. He doubtless regarded us as his own property, often perching upon the table when we were taking our meals and eating from our hands, as though he had been brought up to this kind of treatment; at times ascending to the branches over our head, he would break forth into loud and mellow song, very Thrush-like. In the still hours of the night, while roosting in the branches near us, he would sometimes utter a few dreamy notes, recalling to mind the well-known habits of the true Mocking-bird."

MIMUS.

Mimus, Boie, Isis, 1826, p. 972. (Type *Turdus polyglottus*, Linn.)

With the single exception of *M. polyglottus*, all the species of this genus are found in South America, their distribution over the southern continent being almost universal, extending from the northern shores to Patagonia, and including the greater Antilles and the Galapagos Islands. The common North-American species *M. polyglottus* is found throughout Mexico to the isthmus of Tehuantepec, where its place is taken by *M. gilvus*, a species, under slightly varied plumage, extending through Yucatan, Guatemala, and Honduras to Colombia, Venezuela, and Guiana.

In introducing the generic name *Mimus*, Boie gave no characters, merely mentioning the type species. This want is fully supplied in works on North-American ornithology *.

* Baird, Brew. & Ridgw. N. Am. B. i. p. 48.

1. Mimus polyglottus.

Turdus polyglottos, Linn. Syst. Nat. i. p. 293[1].

Orpheus polyglottos, Sw. Phil. Mag. new ser. i. p. 369[2].

Mimus polyglottus, Scl. P. Z. S. 1857, p. 212[3]; Baird, Rev. Am. B. p. 48[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 543[5]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 277[6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 267[7]; Baird, Brew. & Ridgw. N. Am. B. i. p. 49[8]; Sennett, Bull. U. S. Geol. Surv. iv. p. 3[9]; Coues, B. Col. Vall. p. 53[10].

Mimus caudatus, Baird, B. N. Am. p. 345[11].

Mimus polyglottus, var. *caudatus*, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 12[12].

Mimus?, Scl. P. Z. S. 1860, p. 250[13].

Supra cinereus, superciliis indistincte albis, loris nigris; alis nigricantibus cinerascenti limbatis, primariorum basi et eorum tectricibus (præter apices) speculum alare album formantibus; subtus albus, pectore paulo grisescente; cauda nigra, rectrice extima tota, secundæ pogonio interno, et tertia (nisi parte media) albis; rostro et pedibus nigris. Long. tota 9·5, alæ 4·4, caudæ 4·4, rostri a rictu 1·0, tarsi 1·35. (Descr. exempl. ex Oaxaca, Mexico merid. Mus. nostr.)

Hab. N. America, from lat. N. 40° southwards[8].—Mexico, between Guaymas and Mazatlan (*Grayson*[6]), Mazatlan (*Grayson*, *Bischoff*[7]), Tres Marias Is. (*Grayson*[6]), Real del Monte (*Bullock*[2]), Orizaba (*Sallé*[13], *Botteri*[3], *Sumichrast*[5]), Mirador (*Sartorius*[4]), valley of Mexico (*le Strange*), Oaxaca (*Fenochio*), Villa Alta (*Boucard*), Tehuantepec (*Sumichrast*[12]).

This well-known species, perhaps the most familiar of all the birds of the United States, is found in suitable localities throughout Mexico as far south as the Isthmus of Tehuantepec (where *M. gilvus* is also found), its place being taken in the promontory of Yucatan and in Guatemala by the southern species *Mimus gilvus*. Whether the Cuban species spoken of by Dr. Gundlach * is identical with the northern bird is not yet certain, as specimens do not appear to have been actually compared; but as each of the islands of the Greater Antilles appears to have a race of its own of this section of the genus *Mimus*, it is probable that the Cuban bird differs to some extent from *Mimus polyglottus*.

In Mexico *M. polyglottus* was found by Grayson in the Tres Marias Islands, where, however, though resident[7], it is rare and a shy bird[6]. In the State of Vera Cruz Prof. Sumichrast found it in the hot and temperate regions, and he says[5] that it is one of the few species that are found equally abundant in localities the most widely different both as to height and climate, being found from the gulf-shores as far up as the great plains of the plateau, but always only in the more open portions. It nests in the neighbourhood of Orizaba. *Mimus polyglottus* is found in abundance all along the northern frontier of Mexico, both in the basin of the Colorado[10] and in the Rio-Grande valley[9].

At one time Prof. Baird seemed disposed to separate the western bird under the name *M. caudatus*[11], on account of the greater length of the tail of certain western

* Orn. Cub. p. 60.

specimens. In his later work this separation is not confirmed[8]; but Mr. Lawrence[12] refers Tehuantepec specimens to the long-tailed race, if such it is, under the name *Mimus polyglottus*, var. *caudatus*. Our Oaxaca specimen, however, has a shorter tail than one from Villa Alta and another from Cape San Lucas in our collection; so that the length of the tail cannot be said to be a characteristic of western specimens.

The well-known habits of this species are fully described in works on North-American birds[8].

2. **Mimus gilvus.**

Turdus gilvus, Vieill. Ois. Am. Sept. ii. p. 15, t. 68 bis[1].
Mimus gilvus, Scl. & Salv. Nomencl. Av. Neotr. p. 3[2].
Mimus melanopterus, Lawr. Ann. Lyc. N. Y. v. p. 35, t. 2[3].
Mimus columbianus, Cab. Mus. Hein. i. p. 82[4].
Mimus gracilis, Cab. Mus. Hein. i. p. 83[5]; J. f. Orn. 1860, p. 410[6]; Scl. & Salv. Ibis, 1859, p. 7[7]; Taylor, Ibis, 1860, p. 110[8]; Owen, Ibis, 1861, p. 60[9]; Salv. Ibis, 1866, p. 202[10]; Lawr. Ann. Lyc. N. Y. ix. pp. 91[11], 199[12]; Bull. U. S. Nat. Mus. no. 4, p. 12[13]; Frantz. J. f. Orn. 1869, p. 290[14].

Supra cinereus; superciliis albis; loris nigris; alis nigris albo limbatis, tectricibus alarum et secundariorum apicibus albis; speculo alari nullo; subtus albus, pectore paulo cinerascente; cauda nigra; rectricum apicibus nisi duarum mediarum albis, rectrice utrinque extima pogonio externo toto et interno dimidio apicali albis; rostro et pedibus nigris. Long. tota 10·0, alæ 4·1, caudæ 5·0, rostri a rictu 1·0, tarsi 1·25. (Descr. maris ex Belize. Mus. nostr.)
Juv. pectore et hypochondriis fusco maculatis. (Descr. exempl ex Dueñas, Guatemala. Mus. nostr.)

Hab. Mexico, Tehuantepec (*Sumichrast*[13]), Merida, Yucatan (*Schott*[12], *Gaumer*); British Honduras, Belize[7], Lighthouse and Glover's reefs (*O. S.*); Guatemala, Salamá, San Gerónimo[9], plain of Zacapa, Upper Motagua valley, Dueñas[9], Jutiapa (*O. S. & F. D. G.*); Honduras[5], Comayagua (*Taylor*[8]).—Colombia[4]; Venezuela[3]; Guiana[1]; Lesser Antilles.

The name *Turdus gilvus* was bestowed upon a Guiana bird, which was also said to be found in the warmer parts of South America[1]; and Vieillot's plate of it[1] fairly represents the bird found throughout the northern parts of South America and Central America as far north as Guatemala. Several names have since been proposed for this *Mimus*; but the differences between birds from different localities seem hardly sufficient to justify the retention of any of them. The bird found in Venezuela is perhaps the most distinct, as it has the wing-coverts more broadly edged with ashy, and tipped more widely with the same colour, than usual in Colombian and Guatemalan specimens; but the latter are not quite constant in this respect, and we think all ought to bear the same name. Thus *M. melanopterus*[3] of Venezuela, *M. columbianus*[4] of Colombia, and *M. gracilis*[5] of Honduras all become synonyms of *M. gilvus*.

Found in the isthmus of Tehuantepec[13] and in Northern Yucatan[12] *M. gilvus* spreads

over the whole of Guatemala and Honduras as far as Comayagua[8]. We have no authentic record of its occurrence elsewhere in Central America; but in South America it reappears in the neighbourhood of Santa Marta, in Antioquia, and the vicinity of Bogota, and spreads eastwards through Venezuela to Guiana and some of the Lesser Antilles. The record of its occurrence in Costa Rica, Dr. v. Frantzius tells us[14], was founded on an error, the bird sent home by Dr. Hoffmann[6] having come as a cage-bird from Guatemala.

In Guatemala *Mimus gilvus* has the same great range in altitude attributed to *M. polyglottus* in Mexico. We found it at the sea-level near Belize and on the Cays of the adjoining coral-reefs, and also at Dueñas, 5000 feet above the sea. It is, however, most abundant in the Upper Motagua valley and throughout the plain of Salamá, where its song may always be heard throughout the breeding-season. Mr. Owen[9] took several of its nests near San Gerónimo, most of which were placed in the cactus-plants grown for the cochineal-insects. Others were in hedge-rows or bushes on the plain, but all in rather exposed situations. The usual complement of eggs was three, which were of a pale greenish-grey, blotched with spots of red-brown and two shades of faint lilac. They measure 1·05 in. × ·7. One of them is figured in 'The Ibis' for 1861 (t. 2. f. 2).

At Dueñas we saw very little of *Mimus gilvus* during our early visits to Guatemala[10]; but we obtained a young bird, which still retained spots on the under surface, which must have been reared in the neighbourhood. In 1873 its numbers appeared to have greatly increased, and birds were frequently seen in plains covered with scattered trees of *Ipomœa murocoides*. When disturbed a bird seldom flies far, but seeks shelter in the nearest bush. Its song is very varied and rich, and the bird is much sought after by the natives as a favourite cage-bird.

Note.—Another species of *Mimus* (*M. nigriloris*) has been doubtfully attributed to Mexico by its describer, Mr. Lawrence*, upon the authority of Dr. Van Patten and Mr. Gruber, of San Francisco. As the bird appears to belong to the section of the genus containing *M. longicaudatus* and *M. thenca*, species of Western Peru and Chili, a more southern origin than Mexico is probably its true one. Anyhow, better evidence is required as to its habitat before including the bird in the fauna of Mexico.

RHODINOCICHLA.

Rhodinocichla, Hartlaub, Journ. f. Orn. 1853, p. 33. (Type *Furnarius roseus*, Less.)

This singular genus was long placed in the Dendrocolaptidæ, near the Oven-birds (*Furnarius*), to which genus it was actually assigned by its original describer. Prof. Baird seems to have been the first to recognize that Dr. Hartlaub was not far wrong as to its generic affinities when he described the female as a species of *Turdus*. It is,

* Ann. Lyc. N. Y. x. p. 137.

however, with the Miminæ, or perhaps the Troglodytidæ, that *Rhodinocichla* has the closest relationship, the short rounded wings, comparatively strong feet, with tarso-metatarsus covered in front with several scales, as well as its strong curved beak and rounded tail being all Mimine rather than Turdine characteristics. The young, too, in its first plumage has a mottled under surface, the back being plain-coloured. In its powers of song it resembles both sections; but in coloration *Rhodinocichla* is quite peculiar. As regards the wings, the first primary is large enough to take its full function as part of the wing, a very important point considering the high value that has been placed upon this character. On the whole, then, though we are at present disposed to place this curious form with the Miminæ, we should not be surprised to find that its affinities are really elsewhere. This point cannot be settled until more material than the mere skin is examined, upon which alone opinions have at present been formed.

Rhodinocichla being a monotypic genus, its geographical range is coincident with that of the single species contained in it.

1. **Rhodinocichla rosea.**

Furnarius roseus, Less. Ill. Zool. t. 5 [1].

Rhodinocichla rosea, Hartl. J. f. Orn. 1853, p. 33 [2]; Scl. P. Z. S. 1855, p. 141 [3], 1856, p. 140 [4]; Lawr. Ann. Lyc. N. Y. vii. p. 292 [5], ix. p. 92 [6]; Mem. Bost. Soc. N. H. ii. p. 267 [7]; Baird, Rev. Am. B. p. 91 [8]; Scl. & Salv. P. Z. S. 1864, p. 345 [9]; Salv. P. Z. S. 1867, p. 133 [10], 1870, p. 180 [11]; Finsch, Nat. Ver. z. Bremen, 1870, p. 329 [12]; v. Frantz. J. f. Orn. 1869, p. 291 [13].

Turdus vulpinus, Hartl. Rev. Zool. 1849, p. 276 [14]; P. Z. S. 1850, p. 276 [15].

Cichlalopia vulpina, Bp. C. R. xxxviii. p. 6 [16], et Orn. Not. p. 29 [16].

♂ fusco-niger, fronte, superciliis anticis, gutture, abdomine medio, crisso et campterio alari rosaceo-rubris, superciliis posticis albis; hypochondriis fuscis; rostro pallide corneo, maxillæ basi et pedibus corylinis. Long. tota 8·0, alæ 3·4, caudæ 3·6, rostri a rictu 1·1, tarsi 1·0.

♀ paulo minor et brunnescentior, coloribus maris rosaceo-rubris saturate fulvis; abdomine imo albicante. Long. tota 7·5, alæ 3·1, caudæ 3·5, rostri a rictu 1·0, tarsi 1·0. (Descr. maris et fem. ex Lion Hill, Panama. Mus. nostr.)

Hab. Mexico, Mazatlan and Sierra Madre (*Grayson* [7]); Guatemala? (*Mus. Derb.*[3]); Costa Rica (fide *S. F. Baird* [6], *v. Frantzius* [12]); Panama, David (*Bridges* [4]), Volcan de Chiriqui, Mina de Chorcha, Chitra, Calovevora, and Santa Fé (*Arcé* [10 11]), Lion Hill (*M'Leannan* [5 9]).—Venezuela [14]; Colombia [3].

Lesson, who first described and figured this species [1], gave as its habitat "San Juan," Brazil; but recent researches render it doubtful if the species is found outside the limits of Venezuela and Colombia and the parts of Central America indicated above. The bird described by Lesson was a male, from which the female differs so widely in colour that it is hardly surprising that Dr. Hartlaub redescribed a specimen of the latter sex under the name of *Turdus vulpinus*—the widely different views as to the

position of this anomalous form entertained by these two ornithologists rendering the recognition of the two birds as sexes of one species less easy, Lesson having placed his bird in the genus *Furnarius*, Dr. Hartlaub the bird he described in the genus *Turdus*, the distribution of the colours and, to some extent, the form suggesting to his mind a resemblance to the African genus *Cossypha*. For many years Lesson's views were usually adopted; but latterly its relationship to the Turdidæ has been recognized partly from a reexamination of the external form and partly from the discovery of the vocal powers of the bird. There can now be but little doubt that *Rhodinocichla* must be considered an aberrant Thrush or Wren, its affinity being, perhaps, nearer the latter family.

The range of *R. rosea* is somewhat singular. In the State of Panama it seems to be, as in Venezuela and Colombia, a very common bird. In Costa Rica its presence has been recorded; and that is all that can be said concerning it. Mr. Sclater's statement of the existence of a Guatemalan specimen in the Derby Museum at Liverpool is all that we know of the presence of the species in that country; for, of the thousands of skins we have examined from there, we have never met with a single example of *R. rosea* *. It has never been detected in Southern Mexico; but in North-western Mexico it has been noticed by both Grayson and Xantus. It is to the former of these travellers that we owe the chief note on the habits of the species. He says that it is found near Mazatlan in the thickly wooded district bordering the river, where it remains throughout the year concealing itself in the densest bush, its voluptuous and melodious song being often heard when the bird is invisible. Bridges also[4] speaks of having had his attention attracted to the single bird he obtained at David by its very peculiar note.

Subfam. *MYIADECTINÆ*.

MYIADECTES.

Myiadestes, Swainson, Nat. Libr. Ornith. x. p. 132 (1838). (Type *M. genibarbis*, Sw.)

The position of this group of birds was long a matter of considerable doubt; for though *Myiadectes* was placed by some systematists in the family Ampelidæ with *Ptilogonys* and *Phainopepla*, it was felt that the many points of difference from those genera possessed by it rendered its removal from their vicinity only a matter of time.

In 1866 Prof. Baird made a careful and exhaustive examination of the external form of *Myiadectes* when writing his 'Review of American Birds;' and though he placed it in the family Ampelidæ, he clearly pointed out the great affinity the genus has to the Turdidæ, suggesting its removal into that family in any remodelling of these groups of birds. This plan has now been pretty generally adopted; and recent writers on American birds place *Myiadectes* either as a subfamily of the Turdidæ or in the Sylviidæ, two

* Mr. Moore informs us that this specimen was purchased of Leadbeater in 1844. It bears a ticket with "Guatimala" written on it in an unknown handwriting.

families of very artificial limits, no very trenchant characters being found to separate them. To the Muscicapidæ *Myiadectes* also has a certain resemblance, especially when the form of the bill and the development of the rictal bristles are considered; of Muscicapidæ, the West-African genus *Cassinia* is that which *Myiadectes* most calls to mind. The characters *Myiadectes* has in common with the Turdidæ are the spotted first plumage of the young, the tarso-metatarsus covered with single plate in front, the long pointed wings, and the great vocal powers of all members of the genus.

About ten species are included in the genus, all of which are very uniform in their general appearance, though differing considerably in colour. They are distributed from the Rocky Mountains through Central America to Bolivia; and several of the West-Indian Islands possess species peculiar to them. In the north *M. townsendi* is found, a species which may cross into Northern Mexico. Mexico and Guatemala have two species in common; and in Costa Rica another is found. A single species, if we except the aberrant *M. leucotis*, ranges throughout the Andes from Venezuela to Bolivia. Cuba and Jamaica have each a species peculiar to them; and one is reported from San Domingo, but has not yet been obtained. The Lesser Antilles have three other species, all closely allied to the Jamaican bird.

The peculiar songs of the various species of *Myiadectes* have always excited attention. Those of *M. obscurus* and *M. unicolor*, with which we are familiar, may be likened in tone to pouring water into a tin vessel. The habit of the birds is to sit almost motionless on a branch in thick underwood, the males uttering their song at intervals chiefly in the morning and evening. *M. townsendi* is described as sometimes running on the ground*, a habit never observed by us in the Guatemalan birds. The food of *Myiadectes* seems to consist chiefly of fruit; but *M. townsendi* devours insects also.

1. **Myiadectes obscurus.**

Myiadestes obscurus, Lafr. Rev. Zool. 1839, p. 98[1]; Scl. P. Z. S. 1857, p. 213[2], 1858, p. 302[3], 1859, pp. 363[4], 376[5]; Scl. & Salv. Ibis, 1859, p. 14[6]; Ex. Orn. p. 49, t. 25[7]; Baird, Rev. Am. B. p. 430[8]; Sumichrast, Bost. Soc. N. H. i. p. 548[9]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 277[10]; Lawr. Mem. Bost. Soc. N. H. ii. p. 273[11].

Hypothyrius cæsia, Mus. Berol.[12]

Schistaceus; oculorum ambitu albo, loris et striga rictali nigris; alis fusco-nigris, extus rufo limbatis; interscapulio pallidus rufo; dorso imo olivaceo perfuso; subtus dilute schistaceus, gutture et ventre medio cum crisso albicantibus; remigum macula magna interna ochraceo-alba; cauda nigricante, rectricibus duabus mediis cum unius utrinque proximæ pogonio externo griseis; rectricibus lateralibus albo terminatis; harum unius utrinque extimæ dimidio apicali pallide griseo notato; rostro nigro, pedibus fuscis. Long. tota 7·5, alæ 4·0, caudæ 4·1, rostri a rictu ·75, tarsi ·9. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico[1], Tres Marias Is. (*Grayson*[10 11]), Tonila and Jalisco (*Xantus*[11]), Real Ariba (*Deppe*), Orizaba (*Botteri*[2], *Sumichrast*[9]), Jalapa (*de Oca*[4]), La Parada[3], Yoletepec[5]

* Coues, B. Coll. Vall. i. p. 45.

and Totontepec (*Boucard*), Oaxaca (*Fenochio*); GUATEMALA, Volcan de Fuego, Cerro de Zunil, Quezaltenango, San Gerónimo, Tactic (*O. S. & F. D. G.*).

Though the late Baron Lafresnaye first described this species from Mexican specimens[1], the bird had for several years stood in the galleries of the Berlin Museum, Deppe having found it near Real Ariba in Southern Mexico. The Berlin specimens now bear the name "*Hypothymis cæsia*"*. Since then the species has been observed by many travellers in Mexico, where it is known under the name of "Jilguero." Grayson[10] tells us that in the Tres Marias Islands the bird is more frequently to be met with than on the mainland, confining itself to the hilly portions of the islands, where, at all times, its strange medley of song may be heard in the morning and evening. It will thus be seen that the bird is found in North-western Mexico at no great elevation above the sea; but Prof. Sumichrast[9] places it amongst the birds of the alpine region of the State of Vera Cruz, where it chiefly breeds up to a height of 8200 feet, being found, however, as low as 3300 feet above the sea-level. In Guatemala it is very abundant in some parts of the country, being diffused throughout the high tableland (elevation from 5000 to 7000 feet) which forms the main cordillera. Eastward of this *M. obscurus* follows the high ridge of mountains which runs into Vera Paz, where it passes a little beyond the village of Tactic. Here its range terminates abruptly, its place being taken by *M. unicolor*, the two species being never found together. In the ravines of the volcanoes we found it very abundant, its clear, metallic, ringing song, which is uttered at intervals throughout the day, at once attracting attention and making its presence known. As it sits concealed in the thickest undergrowth of the ravines, it is not a bird easily detected, and a sight of it can only be obtained by cautious movements on the part of the observer.

The solitary habits of *M. obscurus*, and its place of constant resort, have suggested the name "Guarda-barranca," or "Guard of the ravine," by which it is well known to the people of Guatemala. It is a very favourite cage-bird, living happily in captivity and singing freely its peculiar and melodious song.

The eggs of this species, which were obtained by M. Boucard in Oaxaca, are described by Mr. Sclater[5] as very Robin-like in appearance, being minutely freckled and streaked with brownish ash-colour on a white ground, the markings being denser round the larger end, where they form a ring; they measure ·875 by ·61 inch.

2. **Myiadectes unicolor.**

Myiadestes unicolor, Scl. P. Z. S. 1856, p. 299[1], 1857, p. 213[2]; Salv. & Scl. Ibis, 1860, p. 397[3]; Ex. Orn. p. 51, t. 26[4]; Baird, Rev. Am. B. p. 428[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548[6].

* Mr. Sclater (P. Z. S. 1856, p. 299) at one time thought that this name applied to *M. unicolor*; but a recent examination of the specimen showed us that it had been attached to *M. obscurus*.

Schistaceus fere unicolor, loris nigris, oculorum ambitu albo; subtus paulo pallidior, ventre medio albicantiore; alis nigris, extus brunnescenti-oleagineo partim marginatis; cauda nigra, rectricibus duabus mediis dorso concoloribus, rectricum lateralium parte apicali pallidiore et apicibus ipsis albis; rostro nigro; pedibus corylinis. Long. tota 7·5, alæ 3·8, caudæ 3·4, rostri a rictu ·6, tarsi ·73. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Hab. Mexico, Cordova (*Sallé* [1]), Orizaba (*Botteri* [2]), State of Vera Cruz (*Sumichrast* [6]); Guatemala, Coban [3], Choctum, and forests northwards to Peten (*O. S. & F. D. G.*).

This interesting bird was one of M. Sallé's discoveries in Southern Mexico, where he obtained the specimens described by Mr. Sclater in 1856 [1], one of these type specimens being afterwards figured in 'Exotic Ornithology' [4]. Cordova [1] and Orizaba [2 6] are the only recorded localities in Southern Mexico where *M. unicolor* is found, it being apparently absent from the western parts of the country, the territory of *M. obscurus*. Prof. Sumichrast, who found it in the State of Vera Cruz, states [6] that it is an inhabitant of the temperate region, where it is quite a characteristic species, being especially abundant in the deep ravines of the districts of Jalapa and Songolica. In Guatemala *M. unicolor* is exclusively found in the northern parts of the department of Vera Paz, the line of demarcation between it and *M. obscurus* being singularly well defined. A traveller journeying to Coban hears the song of the last outlier of *M. obscurus* just after passing the village of Santa Cruz; before he reaches Coban the notes of *M. unicolor* alone strike his ear. Around Coban the present species is abundant in all the patches of wood that clothe the peculiar conical hills of the district; in the vast forests which stretch northwards to the confines of Peten the song of *M. unicolor* is constantly to be heard. Its range in altitude thus extends from about 1000 to 4500 feet above the sea.

The name by which this species is known in Guatemala is "Pito real;" and it is even more esteemed than the "Guarda-barranca" as a cage-bird. Its song is very similar to that of its congener; but the difference between the two is very apparent to one who has ever heard them.

A nest of *M. unicolor*, obtained near Coban by one of our hunters, was a cup-shaped structure formed of fine roots and small twigs, and lined principally with moss. The eggs were very similar to those of *M. obscurus*, described above.

3. **Myiadectes melanops.**

Myiadestes melanops, Salv. P. Z. S. 1864, p. 580, t. 36 [1]; Baird, Rev. Am. B. p. 426 [2]; Lawr. Ann. Lyc. N. Y. ix. p. 97 [3]; v. Frantz. J. f. Orn. 1869, p. 296 [4].

Schistaceus fere unicolor, subtus dilutior; fronte, loris, ciliis oculorum et mento nigris; alis nigris, primariis ad basin schistaceis, secundariis extus parte distali et tectricibus alarum mediis schistaceo limbatis; plaga magna alba in pagina alarum inferiore; cauda nigra, rectricibus duabus utrinque extimis albo terminatis, rectrice utrinque extima pro majore parte distali schistacea, rostro et pedibus flavissimis. Long. tota 7·0, alæ 3·4, caudæ 3·0, rostri a rictu ·65, tarsi ·75. (Descr. exempl. typici ex Tucurriqui, Costa Rica. Mus. nostr.)

Juv. plumis omnibus supra et subtus maculis distinctis fulvis nigro circumcinctis notatis. (Descr. exempl. ex Costa Rica. Mus. nostr.)

Hab. Costa Rica, Tucurriqui (*Arcé* [1]), La Palma[3] and San José[4] (*v. Frantzius*), Navarro (*J. Cooper* [3]), Dota Mountains and Rancho Redondo (*Carmiol* [2]), Volcan de Irazu (*Rogers*).

Myiadectes melanops was one of our collector Arcé's discoveries in Costa Rica soon after he reached that country from Guatemala in 1863. After sending us a small collection from the shores of the Gulf of Nicoya, he proceeded into the interior, and, crossing the mountains, descended into the valley of the Reventazon, and explored the neighbourhood of Tucurriqui and Turrialba with such success that a score of novelties reached us in the next collection he sent us. *M. melanops* was one of the most interesting amongst them; and of it he obtained several examples. Since then many specimens have been obtained by collectors, mostly in the forests of the Volcan de Irazu and in the Dota Mountains. Dr. v. Frantzius gives an account of the species, chiefly derived from its habits in confinement[4]; but he does not seem to have had a personal knowledge of it in its native haunts, as he speaks of its living in the tops of the highest trees—a place of abode so different from that of all its congeners that we cannot but think some other species must have been mistaken for it. A living specimen kept by Dr. v. Frantzius was fed exclusively on the fruit of *Phytolacca decandra*, to be obtained throughout the year in the neighbourhood of San José. The bird would not refuse other juicy fruits, but never touched insects of any kind. From Dr. v. Frantzius's description of the gait and song of his captive bird it would seem that *M. melanops* in these respects quite resembles its congeners.

Fam. CINCLIDÆ.

CINCLUS.

Cinclus, Bechstein, Naturg. Deutschl. iii. p. 808 (1807).

America possesses four species of this genus, belonging to two very distinct groups, the northern birds being closely allied to the Northern-Asiatic *Cinclus pallasi*, the southern species having characters of coloration peculiarly their own. Of the northern birds *Cinclus mexicanus* has a wide range throughout the Rocky Mountains, but is confined to that chain, whence it passes into Mexico and Guatemala. *C. ardesiacus*, of the high mountains of Costa Rica and Panama, is a local race of the northern bird. Thus in Central America we find no trace of near relationship with the two Andean species, one of which, however, is found as near our limits as the Quindiu Mountains in Colombia.

In the Old World *Cinclus* is distributed pretty generally throughout the mountainous

parts of the Palæarctic region, its southern limits extending in Asia to the Himalayas, and in Africa to the Atlas Mountains.

The habits of the species are well known, and have been fully described by writers on European and North-American birds. The number of recognizable species is about thirteen, an account of which will be found in 'The Ibis' for 1867.

1. Cinclus mexicanus.

Cinclus mexicanus, Sw. Phil. Mag. new ser. i. p. 368[1]; Scl. P. Z. S. 1859, p. 361[2]; Baird, Rev. Am. B. p. 60[3]; Salv. Ibis, 1866, p. 190[4], 1867, p. 120[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[6]; Baird, Brew. & Ridgw. N. Am. B. i. p. 56[7]; Coues, B. of the N.W. p. 10[8]; B. of the Col. Vall. p. 89[9].

Obscure cinereus, capite undique fuscescente. Long. tota 6·2, alæ 3·4, caudæ 1·8, tarsi 1·1, rostri a rictu 1·0. (Descr. exempl. ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mountains of CENTRAL and WESTERN N. AMERICA from the Yukon southwards[7 8].—MEXICO, Temiscaltepec (*Bullock*[1]), Jalapa (*de Oca*[2]), Tierra fria (*le Strange*), alpine region of Vera Cruz (*Sumichrast*[6]), Oaxaca (*Fenochio*); GUATEMALA?, ridge above Totonicapam (*O. S.*[4]).

Though the Mexican Dipper was first brought into notice as an American bird by Swainson, who described Bullock's specimen[1], it was supposed by Bonaparte to be the same as the Asiatic *Cinclus pallasi*, and for some time passed under that name *.

It has an extensive range in North America, reaching from the Yukon throughout the Rocky Mountains, to Southern Mexico and probably to Guatemala. It seems to be resident wherever it occurs, even in the most northern parts of its range, where Mr. W. H. Dall found it in the height of winter[7]. Its habits, which quite resemble those of the common European *Cinclus aquaticus*, have been fully described by writers on North-American birds[7 8], and need not be repeated here. From Mexico we have but few details concerning it; Prof. Sumichrast[6] places it amongst the birds of the alpine region of Orizaba, but states that it follows the water-courses of the Cordillera into the temperate region as low as 3300 feet above the sea, its range in altitude extending upwards to an elevation of 7200 feet. In Guatemala we only once met with Dippers, when, on the 5th September 1862, a pair were observed in a mountain-torrent in the Cordillera above Totonicapam, at an elevation of about 10,000 feet above the sea. One of these was shot, but lost in the stream. Not having examined these birds at less than a gunshot distance, we cannot say whether they actually agreed with the Mexican *C. mexicanus*; but we observed that their plumage was of one colour, as in the northern bird.

Cinclus mexicanus has received several synonyms, which will be found enumerated in Dr. Coues's 'Birds of the Colorado Valley'[9].

* Bp. Ann. Lyc. N. Y. ii. p. 439, and Am. Orn. iii. p. 1, t. 16. f. 1.

2. Cinclus ardesiacus.

Cinclus ardesiacus, Salv. Ibis, 1867, p. 121, t. 2[1]; Lawr. Ann. Lyc. N. Y. ix. p. 92[2]; v. Frantz. J. f. Orn. 1869, p. 290[3].

Cinereus, subtus dilutior, capite toto fuscescente, gula albicantiore; alis et cauda fusco-nigris, alarum tectricibus et secundariis cinereo marginatis; ciliis albis; rostro nigro, pedibus flavis. Long. tota 5·5, alæ 3·2, caudæ 1·6, tarsi 1·2, rostri a rictu 0·9. (Descr. fem. ex Cordillera de Tolé, in statu Panamensi. Mus. nostr.)

♂ juv. corpore subtus albido, alarum tectricibus albo terminatis. (Descr. exempl. ex eodem loco. Mus. nostr.)

Hab. Costa Rica, Dota Mountains (*Zeledon*[2 3]); Panama, Cordillera de Tolé (*Arcé*[1]).

Of this southern form of *Cinclus mexicanus* but little is known. Since the receipt of the two specimens from the Cordillera de Tolé, which formed the basis of the original description[1], no others have reached us from that part of the country. It has, however, been detected in Costa Rica in the Dota Mountains[2 3]; and Mr. Sclater has a skin obtained in the same country.

Cinclus ardesiacus is a close ally of *C. mexicanus*. It is, however, of a greyer tint; and though of smaller size, its bill fully equals that of its congener in length. The legs, too, of the type specimen are yellow; but this may indicate immaturity, as the legs of young birds of *C. mexicanus* are described as of that colour.

Fam. SYLVIIDÆ.

Subfam. *SAXICOLINÆ*.

SIALIA.

Sialia, Swainson, Zool. Journ. iii. p. 173 (1827). (Type *Motacilla sialis*, Linn.)

This small genus of three species is a purely Nearctic one, two of its members passing, however, beyond the southern boundary as far as Southern Mexico and Honduras. Its relationship seems to be nearest to the Old-World genus *Saxicola*, from which it chiefly differs in its much shorter tarsi and more thickened bill, besides possessing a totally different character of coloration in the plumage. The young have a spotted first plumage as in the typical Turdidæ; and with that family *Sialia* and, indeed, *Saxicola* have a very close relationship.

1. Sialia sialis.

Motacilla sialis, Linn. Syst. Nat. i. p. 336[1].

Sialia sialis, Baird, Rev. Am. B. i. p. 62[2]; Baird, Brew. & Ridgw. N. Am. B. i. p. 62[3]; Coues, B. of the N.W. p. 13[4]; Sennett, Bull. Geol. & Geogr. Surv. iv. p. 6[5]; Merrill, Pr. U.S. Nat. Mus. i. p. 120[6]; Gundl. Orn. Cub. p. 61[7].

Sialia wilsoni, Sw. Zool. Journ. iii. p. 173[8]; Scl. P. Z. S. 1856, p. 293[9], 1858, p. 299[10], 1859, pp. 361[11], 371[12]; Scl. & Salv. Ibis, 1859, p. 8[13], 1860, p. 29[14]; Jones, Nat. Bermuda, pp. 28, 66[15]; Taylor, Ibis, 1860, p. 110[16]; Owen, Ibis, 1861, p. 60[17].

Sialia azurea?, Sw. Phil. Mag. new ser. i. p. 369 (descr. nulla!)[18]; Baird, Rev. Am. B. p. 62[19]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[20].

Supra azurea, uropygio paulo lætiore, genis vix obscurioribus; subtus rufo-castanea, ventre medio et crisso albis. Long. tota 6·5, alæ 4·1, caudæ 2·8, rostri a rictu 0·75, tarsi 0·75. (Descr. maris ex Volcan de Agua, Guatemala. Mus. nostr.)

Juv. supra fusca, interscapulio albo guttato; subtus albescens, plumis (præcipue in pectore) rufo marginatis, alis et cauda cærulescentibus. (Descr. av. juv. ex Dueñas, Guatemala. Mus. nostr.)

Hab. Eastern United States, west to Fort Laramie, north to Lake Winnipeg[3].—Mexico, Real del Monte (*Bullock*[18]), Cordova and Cerro del Gallego (*Sallé*[9]), valley of Mexico (*le Strange*), temperate region of Vera Cruz (*Sumichrast*[20]), Jalapa (*de Oca*[11]), Mirador (*Sartorius*[2]), La Parada[10] and Juquila[12] (*Boucard*); Guatemala, Quezaltenango, ridge above Totonicapam, Godines, Dueñas[14], San Gerónimo[17], Tactic, Coban[14] (*O. S. & F. D. G.*); Honduras (*Taylor*[16]).—Bermuda[15]; Cuba[7].

The common Bluebird of the Eastern States, which has been known to naturalists since the days of Catesby *, was described by Linnæus under the name *Motacilla sialis*; but Swainson, using *Sialia* for the generic name, proposed to call the bird *S. wilsoni*, by which it was long known. Prof. Baird restored the Linnæan specific name whilst still retaining Swainson's generic title, considering that the slight difference in the termination of the two words was sufficient to justify such a course. The bird is now universally known as *Sialia sialis* by all American ornithologists; and we follow their practice.

In his 'Synopsis of the Birds of Mexico'[18] Swainson seemed to consider the Mexican bird to be distinct from the northern one, and proposed for it the name *Sialia azurea*, but gave no description of it. This name Prof. Baird[19] adopted for the Mexican and Guatemalan bird, believing it to possess characters sufficiently pronounced to admit of its being considered distinct. We have carefully examined a number of specimens, to ascertain whether *S. azurea* can be distinguished with certainty; but we fail to find constant characters by which to define it. Some Guatemalan examples have the chestnut colour more diffused over the under surface and are somewhat large; but scarcely any difference is to be seen in the colour of the back when compared with specimens of true *S. sialis*; and the other points being variable, we doubt whether *S. azurea* deserves specific rank or is even to be considered a local form.

S. sialis would appear to be a common bird in Mexico, though by no means so abundant in Texas[5][6]. In the State of Vera Cruz Prof. Sumichrast considers it to be unquestionably a resident, but not always found in the same localities; wherever it

* Nat. Hist. Carol. i. p. 47, t. 47.

appears it is very common throughout the entire temperate region, ascending to a height of 7400 feet above the sea. In Guatemala it is distributed over the table-lands of the Cordillera, ascending as high as 10,500 feet. It breeds in the neighbourhood of Dueñas, as we more than once obtained young birds in their first spotted plumage in August. The lowest district where it is found is on the plains of San Gerónimo, where it also breeds, Mr. Owen having obtained its eggs in 1860. It is also abundant in open places in Alta Vera Paz, having been noticed both at Tactic and Coban. In Honduras, the most southern locality whence we have any tidings of *Sialia sialis*, Mr. Taylor found it throughout the line of country he traversed, being common amongst the pine trees of the high ridges [16].

In its migrations this bird would seem to be somewhat irregular, as it sometimes makes its appearance in the United States in February, and even in the end of January when the season is mild [3]. It is resident in Bermuda [15], but in Cuba of uncertain appearance. A large flock, Dr. Gundlach tells us, arrived in April 1860 in the neighbourhood of Havana; but since then he has not observed it [7].

2. **Sialia mexicana.**

Sialia mexicana, Sw. Faun. Bor.-Am. ii. p. 202 [1]; Scl. P. Z. S. 1856, p. 293 [2], 1859, p. 362 [3]; Baird, Rev. Am. B. i. p. 63 [4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544 [5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 65 [6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 267 [7]; Coues, B. of the N.W. p. 14 [8].

Sialia cæruleicollis, Vig. Zool. Voy. Blossom, p. 18, t. 3 [9].

S. siali similis, sed supra purpurascentius azurea, gula et abdomine medio cærulescentibus differt. Long. tota 6·5, alæ 4·5, caudæ 2·8, rostri a rictu ·75, tarsi ·75. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Western North America, from Rocky Mountains to Pacific [6 8].—Mexico [1 2] (*Sallé*; *le Strange*), Saltillo (*Couch* [4]), Mazatlan (*Grayson* [7]), plains of Colima (*Xantus* [7]), Jalapa (*de Oca* [3]), Popocatepetl (*Sumichrast* [5]).

In North-western Mexico *Sialia mexicana* would appear to be found at lower elevations than in Southern Mexico; and this may also be said of it in the districts it frequents in more northern countries, Dr. Cooper recording its abundance in all wooded districts in California, except in the high mountains [6]. This species would appear to be more stationary in its habits than the eastern species *S. sialis*, as Dr. Cooper met with birds associated in flocks in Washington Territory in December, at a time when *S. sialis* is to be found in much more southern countries [6]. In its habits *S. mexicana* resembles *S. sialis*; but its song is described as far less tuneful [6].

In Guatemala we never observed this species; for though Bluebirds were obtained in mountains over 10,000 feet above the sea, they proved to be of the eastern species.

The Mexican Bluebird was described by Swainson, in a note in the 'Fauna Boreali-

Americana,'[1] from a specimen in Mr. Taylor's collection obtained from Mexico. Though found in that country by several subsequent travellers, the bird would appear to be rather local in its distribution in Southern Mexico, being, according to Prof. Sumichrast[5], confined to the alpine region, at the extreme limits of vegetation, on the lofty volcano of Popocatepetl; he doubts the accuracy of the locality "Jalapa" assigned to de Oca's specimens[3] *.

Subfam. *REGULINÆ.*

REGULUS.

Regulus, Cuvier, Leç. Anat. Comp. i. t. 2 (1800). (*Les Roitelets = Motacilla regulus*, Linn. &c.)
Phyllobasileus, Cabanis, Mus. Hein. i. p. 33 (1850). (Type *Motacilla calendula*, Linn.)

This peculiar genus comprises six species, which are distributed over the Nearctic Region, Europe, Madeira, and the Himalayas, two of them (or, including *R. cuvieri*, three) being found in America. Both *R. satrapa* and *R. calendula* enter within our limits as winter migrants. One of the chief peculiarities of the genus lies in the nostrils being covered by small stiff feathers—a character which, though rudimentary in *R. calendula*, is still present, rendering Cabanis's generic term for it, *Phyllobasileus*, unnecessary.

1. Regulus satrapa.

Regulus satrapa, Licht. Verz. Doubl. p. 35[1]; Scl. P. Z. S. 1857, p. 212[2], 1860, p. 250[3]; Baird, Rev. Am. B. p. 65[4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 73[5]; Coues, B. Col. Vall. p. 96[6].

Supra virescenti-olivaceus; alis caudaque fusco-nigris flavo limbatis; fascia alarum alba; pileo, oculorum ambitu et stria rictali nigris; vertice summo maris flavo, centraliter rubro-aurantiaco, feminæ flavo tantum; fronte, superciliis, genis et corpore subtus sordide albis. Long. tota 0·4, alæ 2·3, caudæ 1·7, rostri a rictu 0·4, tarsi 0·7. (Descr. maris ex Washington, U. S. Smiths. Inst. no. 25217: Mus. nostr. Fem. ex Mexico: Mus. nostr.)

Hab. NORTH AMERICA generally.—MEXICO, Orizaba (*Sallé*[2], *Botteri*[3]), Tierra fria (*le Strange*); GUATEMALA, Cordillera near Los Encuentros? (*O. S.*).

Though Lichtenstein was the first ornithologist to describe this species, it was previously known to Wilson and others, who, however, failed to distinguish it from the European *Regulus cristatus*. Like *R. calendula* it has a wide range in North America, being, according to Dr. Coues, a more northern species upon the whole, as it is rare in the basin of the Colorado and the country lying to the southward[6].

R. satrapa passes the winter in the States, being found as far north as New England and Washington Territory at that season[4]; but those which are found in Mexico and,

* Cordova has also been included, on M. Sallé's authority, amongst the places where this species is found; but no. 85 of that traveller's list (P. Z. S. 1856, p. 293) has no locality assigned to it, and may have been obtained in the upland region of the Volcano of Orizaba.

perhaps, Guatemala during the winter months are probably immigrants from the north; but on this point our evidence is scanty.

In Mexico it has only been noticed in the neighbourhood of Orizaba [3] and in the highlands near the city of Mexico. Its presence in Guatemala must be considered doubtful, as the only evidence of its being found there rests upon the fact of Salvin having recognized a bird that flew across the road a few yards from him when riding from Totonicapam to Los Encuentros in February 1874.

The habits of this species are fully described in the works on North-American birds we have quoted above. Concerning its song some difference of opinion prevails, Dr. Brewer speaking in high praise of it, whilst Dr. Coues has little to say in its favour. If it at all resembles that of *Regulus cristatus*, we should certainly pronounce it a very poor performance.

2. **Regulus calendula.**

Motacilla calendula, Linn. Syst. Nat. i. p. 337 [1].

Regulus calendula, Scl. P. Z. S. 1857, p. 202 [2], 1858, p. 300 [3], 1859, pp. 361 [4], 371 [5], 1864, p. 172 [6]; Scl. & Salv. Ibis, 1859, p. 8 [7]; Baird, Rev. Am. B. i. p. 66 [8]; Baird, Brew. & Ridgw. N. Am. B. i. p. 75 [9]; Merrill, Pr. U.S. Nat. Mus. i. p. 120 [10]; Coues, B. Col. Vall. p. 92 [11]; Salv. Cat. Strickl. Coll. p. 48 [12].

Supra virescenti-olivaceus, vertice coccineo; uropygio, remigum et rectricum marginibus paulo flavescentioribus; alis albo bifasciatis; oculorum ambitu albo; subtus omnino sordide flavo-albidus, rostro et pedibus obscure corylinis. Long. tota 4·0, alæ 2·4, caudæ 1·8, rostri a rictu 0·5, tarsi 0·8. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Av. juvenis vertice coccineo caret.

Hab. North America generally.—Mexico (*Galeotti* [12]), Jalapa (*Sallé* [2], *de Oca* [4]), La Parada [3] and Talea [5] (*Boucard*), City of Mexico (*White* [6], *le Strange*); Guatemala (*Skinner* [7]), ridge above Totonicapam? (*O. S.*).

This well-known North-American *Regulus* has a wide range over that continent, being found from the shores of the Arctic Sea to the Gulf of Mexico, and from the Atlantic to the Pacific, and has even been known to stray to Greenland. It is a migratory species; but the majority of the birds do not pass beyond the Southern States in winter, being found in some abundance in that season in Texas [10]. In Mexico it is probably only a winter visitant; and it would seem to be not common there, as several of the most assiduous collectors in that country have failed to meet with it. In Guatemala its presence is assured from specimens having been sent from there by Mr. Skinner [7] (one of which, doubtless from this source, is in the Smithsonian Institution [8]); and this is all that can be said concerning it in that country. We have never ourselves met with a single specimen in the large Guatemalan collections of bird-skins we have examined. When crossing the ridge of mountains between Quiché and Totonicapam, Salvin thought he recognized this species in a bird that flew across his

path in the pine-forest at an elevation of 10,000 feet; but no specimen was secured, so that its occurrence in those parts needs confirmation.

Regulus calendula is described by writers on American ornithology as gifted with great powers of song. The habits of the bird are minutely described by them; but as yet its eggs have never been obtained, and its nest was only quite recently described by Dr. Coues. This would seem to be rather a clumsy structure compared with that of *Regulus cristatus*.

Subfam. *POLIOPTILINÆ*.

POLIOPTILA.

Polioptila, Sclater, P. Z. S. 1855, p. 11. (Type *Motacilla cærulea*, Linn.)

The right position of this genus is still a matter of uncertainty. It has been placed with the Paridæ, a family in which its slender bill makes it much out of place. It has also been supposed to have relationship with the Old-World Muscicapidæ; but the point has never been thoroughly examined, nor, indeed, would it be possible to do so now without opening the wide question of the relationship of the Muscicapidæ with the Sylviidæ, Turdidæ, &c., which would lead us into a discussion much beyond the scope of this work. American writers have of late years placed *Polioptila* in a subfamily of the Sylviidæ; and in so doing we must, for the present, be content to follow them. The form of the first primary and the general structure of these birds would seem to indicate that such a position cannot be very far from the correct one, though it is very questionable whether the group should take the rank of a subfamily.

The genus *Polioptila* comprises about eight or nine species, all very similar in colour and of quite uniform structure. These range from the United States to the La-Plata basin. Three species are found in North America, of which one, *P. cærulea*, enters our region as a winter immigrant, the other two being resident beyond the northern border. Counting *P. cærulea*, four so-called species are found in Mexico and Central America: two or three of these, however, appear to mingle to some extent. Cuba has a peculiar species in *P. lembeyi*, and also shelters *P. cærulea* in winter. Guiana and South-eastern Brazil have each a species closely allied to one another and to the more northern *P. nigriceps*; and Bolivia and the La-Plata region have *P. dumicola* in common.

1. Polioptila cærulea.

Motacilla cærulea, Linn. Syst. Nat. i. p. 337[1].

Polioptila cærulea, Scl. P. Z. S. 1859, p. 362[2]; Baird, Rev. Am. B. i. p. 74[3]; Lawr. Ann. Lyc. N. Y. ix. p. 199[4]; Mem. Bost. Soc. N. H. ii. p. 267[5]; Bull. U.S. Nat. Mus. no. 4, p. 12[6]; Baird, Brew. & Ridgw. N. Am. B. i. p. 78[7]; Merrill, Pr. U.S. Nat. Mus. i. p. 120[8]; Coues, B. Col. Vall. i. p. 101[9]; Gundl. Orn. Cub. p. 61[10].

Culicivora mexicana, Bp. Consp. Av. i. p. 316[11].

Polioptila mexicana, Scl. P. Z. S. 1859, pp. 362[12], 373[13], 1862, p. 18[14]; Scl. & Salv. Ibis, 1859, p. 9[15]; Salv. Ibis, 1866, p. 202[16].

Polioptila, sp. ?, Salv. P. Z. S. 1856, p. 298[17].

Supra plumbeo-cærulea, fronte et superciliis nigris, loris, capitis lateribus et corpore subtus albis cinereo tinctis; oculorum ambitu albo; alis fusco-nigris, remigibus et tectricibus sordide cinereo limbatis, secundariis intimis late albo marginatis; cauda nigra, rectricis utrinque extimæ parte exposita alba, proximæ dimidio apicali albo, tertia utrinque albo terminata; rostro et pedibus nigris. Long. tota 4·5, alæ 2·1, caudæ 2, rostri a rictu 0·6, tarsi 0·75. (Descr. maris ex Lanquin, Vera Paz. Mus. nostr.)

♀ mari similis, sed paulo cinerascentior, fronte et superciliis nigris absentibus. (Descr. fem. ex Dueñas, Guatemala. Mus. nostr.)

Hab. Middle region of United States[7 9].—Mexico[11] (*le Strange*), Mazatlan (*Grayson*[5]), Tamaulipas and Colima (*Couch*[3]), Cordova (*Sallé*[17]), Jalapa (*de Oca*[2 12]), Oaxaca (*Boucard*[13 14]), Tonila (*Xantus*[5]), Santa Efigenia and Juchitan, Tehuantepec (*Sumichrast*[6]), Merida, Yucatan (*Schott*[4]); Guatemala, Retalhuleu, Escuintla, Dueñas[15], summit of Volcan de Agua[15], San Gerónimo, Tactic, Coban, Lanquin, savannas of Peten (*O. S. & F. D. G.*).—Cuba[10]; Bahamas[7].

Polioptila cærulea was well known to the old writers of the last century, having formed the subject of plate 302 of Edwards's 'Gleanings of Natural History,' published in 1760, under the name of "The Little Blue-grey Flycatcher," subsequently called *Motacilla cærulea* by Linnæus[1]. It is a familiar species in the United States during the summer, where it arrives early in April and remains till September. Dr. Coues, to whom the bird is well known, has given a full account of its habits in the neighbourhood of Washington in the breeding-season, and described its nest and eggs[9]. Its winter quarters are to be found in Mexico and Guatemala, all records of its occurrence in the former conntry having been made in the autumn, winter, or early spring months. In the latter country we only found it between September and March. The earliest record of its appearance is given by Prof. Sumichrast, who observed it on the Isthmus of Tehuantepec in August, whilst it came under our notice at Retalhuleu in September. March seems to be the month of its departure from the south; we have a specimen shot at Lanquin in that month, but none later. In Texas Dr. Merrill says it is abundant during the migration; but here a few remain to breed[8]. In Guatemala it is a very common bird nearly everywhere, its restless pursuit of insects rendering its presence almost certain to be detected wherever it is found. Stems, branches, and leaves of trees and shrubs are all searched with the greatest diligence, so that the movements of the bird soon catch the eye of one on the look-out for such objects.

The great range in altitude at which *Polioptila cærulea* is found in Guatemala is somewhat surprising; we observed it in the stunted bushes which grow on the crater of the Volcan de Agua, at a height of 12,300 feet above the sea, and also at Retalhuleu, which is not more than 900 feet, a difference of 11,400 feet! and this in places that are almost within sight of each other.

It seldom happens that male birds with the black forehead and eye-streak are found in Mexico and Guatemala; and this fact has given rise to the supposition that the bird found in these countries, for which Bonaparte gave the name *P. mexicana*, is a species distinct from *P. cærulea*. Mr. Sclater, in 1859, thought that the black marks in the male were only assumed during the breeding-season. If this is really so, we know of no parallel case of such a change taking place in Passerine birds; but the suggestion receives support from the fact that one of our specimens with the black frontal line was shot at Lanquin in March. Dr. Gundlach, however, speaks very positively on the point, stating that the character which distinguishes the male from the female is only to be observed in spring shortly before the departure of the birds from Cuba for the United States in April [10].

2. Polioptila nigriceps.

Polioptila nigricens, Baird, Rev. Am. Birds, p. 69 [1]; Lawr. Mem. Bost. Soc. N. H. ii. p. 267 [2]; Bull. U.S. Nat. Mus. no. 4, p. 12 [3].

P. cæruleæ similis, sed pileo toto cum loris et superciliis nitenti-nigris. Long. tota 4·3, alæ 1·95, caudæ 2·0, rostri a rictu 0·65, tarsi 0·75. (Descr. maris ex La Union, San Salvador. Mus. nostr.)

Hab. Mexico, Mazatlan (*Xantus* [1], *Grayson* [2]), Tepic (*Grayson* [2]), Quiotepec (Oaxaca), Tapana and Santa Efigenia (Tehuantepec) (*Sumichrast* [3]); San Salvador, La Union (*O. S.*).—Colombia; Venezuela.

Having had, through the kindness of the authorities of the Smithsonian Institution, an opportunity of examining the type specimen of *Polioptila nigriceps* and of comparing it with Colombian and Venezuelan examples some time called *P. buffoni*, we were unable to appreciate any tangible differences between them. Both have the lores black; and in the amount of black on the outer rectrices both were almost exactly alike. We are therefore obliged to acknowledge them to be of one species. The La-Union specimen described above has a few white feathers in the lores, but does not otherwise differ from the type of *P. nigriceps*. The true *P. buffoni* is from Guiana, and has, as stated in Mr. Sclater's original description, the outer rectrix nearly wholly white. The name *P. nigriceps*, therefore, can be used for the bird having the range indicated above. It is stated by Grayson [2] to be found in North-west Mexico in low brushy woods at all seasons, and by Prof. Sumichrast [3] to be common almost everywhere in the west of the Isthmus of Tehuantepec and in dry warm districts of the State of Oaxaca, frequenting the ravines and thin woods and going almost always in pairs.

3. Polioptila bilineata.

Culicivora bilineata, Bp. Consp. i. p. 316 [1].

Polioptila bilineata, Scl. P. Z. S. 1860, p. 273 [2]; Baird, Rev. Am. B. i. p. 72 [3].

Polioptila superciliaris, Lawr. Ann. Lyc. N. Y. vii. pp. 304 [4], 322 [5], viii. p. 179 [6], ix. p. 92 [7]; Scl.

& Salv. P. Z. S. 1864, p. 344[8]; Baird, Rev. Am. B. i. p. 71[9]; Salv. Ibis, 1866, p. 190[10]; P. Z. S. 1870, p. 182[11].

P. nigricipiti affinis, sed loris et superciliis albis, striga postoculari tantum nigra, capiti nigro conjuncta. Long. tota 4·0, alæ 1·8, caudæ 1·8, rostri a rictu 0·65, tarsi 0·7.

♀ mari similis quoad lororum et superciliarum colorem, sed capite summo plumbeo nec nigro distinguenda. (Descr. maris et fem. ex Lion Hill, in statu Panamensi. Mus. nostr.)

Hab. Guatemala, Chisec (*O. S. & F. D. G.*[10]); San Salvador, La Union (*O. S.*); Nicaragua, Greytown (*Holland*[6]); Costa Rica, Punta Arenas (*O. S.*), Turrialba (*Arcé*), Angostura, Atirro, and Guiatil (*Carmiol*); Panama, Bugaba (*Arcé*[11]), Lion Hill (*M'Leannan*[4 5 8 9]), Chepo (*Arcé*).—Colombia[1]; Ecuador[2].

This species, originally described from specimens in the Berlin Museum obtained at Carthagena in Colombia[1], was subsequently found by Fraser at Babahoyo in Ecuador[2]; and we have since had specimens sent us from the island of Puná in the Gulf of Guayaquil. It was afterwards described by Mr. Lawrence, from examples obtained on the Isthmus of Panama[4], as *P. superciliaris*; but we think there is little room for doubt that Panama, Colombian, and Ecuadorian birds belong to the same species, which should bear the name *P. bilineata*. The species in its range passes beyond the State of Panama through Costa Rica into Nicaragua, and as far as the Gulf of Fonseca, and then reappears in the northern parts of Vera Paz, its range being interrupted by the so-called *P. albiloris*—a state of affairs we have attempted to explain under the heading of that form.

One of the birds shot at La Union is exactly in the plumage of the typical female *P. bilineata*. It was found in company with males that approach much more closely to *P. nigriceps* than to any other form, the only difference being the presence of a few white feathers in the otherwise black lores of these male birds.

The specimen shot by Salvin near Punta Arena, in Costa Rica, was found in the scrubby forests in the outskirts of the town. It exhibited the restless habits so well known in its congener *P. cærulea*.

4. **Polioptila albiloris.** (Tab. V. figg. 1, 2.)

Polioptila albiloris, Scl. & Salv. P. Z. S. 1860, p. 298[1]; Ibis, 1860, p. 397[2]; Owen, Ibis, 1861, p. 61, t. 2. f. 3[3]; Baird, Rev. Am. B. p. 73[4]; Lawr. Bull. U.S. Nat. Mus. No. 4. p. 12[5].

P. nigricipiti affinis, sed loris (nec superciliis) albis distinguenda. Long. tota 4·3, alæ 1·9, caudæ 2·0, rostri a rictu 0·6, tarsi 0·7.

♀ mari similis, sed capite plumbeo distinguenda. (Descr. maris et fem. ex Chuacus, Guatemala. Mus. nostr.)

Hab. Mexico, Santa Efigenia and Tehuantepec city (*Sumichrast*[5]); Guatemala, Chuacus (*O. S. & F. D. G.*[1 2] and *R. Owen*[3]); Nicaragua, Granada and Realejo (*J. M. Dow*[4]).

The original specimen described as *Polioptila albiloris* was shot near the village of Chuacus in Vera Paz, in a gorge opening out into the great valley of the Motagua.

The bird, a male, was found in scrubby wood near the roadside. The following year Mr. Owen obtained a female bird with its nest and eggs in the same locality. The nest, a very neat compact structure, was composed outwardly of dried stalks of grass and roots, with a coating of cobweb and other adhesive materials. The lining consisted of the feathery parts of seeds, horsehair, and fine grass; the whole structure measured $1\frac{3}{8}$ inch across the inside and $1\frac{1}{2}$ inch in depth. This nest was situated in low brushwood, almost under the eaves of one of the ranchos. The eggs are white, spotted with red, principally of two shades, the spots increasing in number towards the obtuse end; they measure—axis 0·6, diam. 0·45 in.

Besides these typical birds, the male of which has the lores white, but no white supercilium, though a few white feathers are to be seen in this region in the type specimen, we have seen similar ones from the Isthmus of Tehuantepec, where Prof. Sumichrast observed them in May and December.

Having thus given some account of the three forms of black-headed *Polioptilæ* found in Central America (*P. nigriceps* with the lores wholly black, *P. albiloris* with the lores white, and *P. bilineata* with both lores and superciliaries white), it remains to consider the position of certain specimens which seem to have intermediate characters connecting two or all of these forms together. These birds were obtained, with a female of the true *P. bilineata*, near La Union in San Salvador, and have the lores black, with a few white feathers intermingled. They were once attributed by us to *P. buffoni*—that is, the Colombian bird we now consider to be the same as *P. nigriceps*; and they are undoubtedly as closely allied as possible to that bird; Prof. Baird, however, preferred to call some of them *P. albiloris*. Putting *P. albiloris* aside, and observing the ditribution of *P. nigriceps* and *P. bilineata*, we find the curious fact that the ranges of these two forms actually cross one another, and that the area where *P. bilineata* comes into contact with the northern section of *P. nigriceps* corresponds more or less to that occupied by *P. albiloris*, at once suggesting the supposition that *P. albiloris* is not a true species at all, but due to the intermingling of *P. bilineata* with *P. nigriceps*, and, further, that technically these last-named birds are not true species either. The way the present state of affairs has come about may have been as follows:—Formerly *P. nigriceps* was the only form which was found from Colombia to Mazatlan. The form of Western Ecuador, *P. bilineata*, then began to spread, pushed out or more probably absorbed *P. nigriceps* in Panama and Costa Rica, where now only pure-blooded *P. bilineata* are found. In San Salvador and Central and Western Guatemala to the Isthmus of Tehuantepec the process of absorption is still incomplete; and hence the presence of the intermediate forms represented by *P. albiloris*. But *P. bilineata* has done more than this; for in Vera Paz we find pure-blooded birds, showing that it has established itself beyond the influence of *P. nigriceps*. The range of this last form has thus been completely severed, one part remaining in Colombia and the other in Western Mexico.

How our nomenclature is to recognize cases like the present is a matter not easy to adjust. We believe that *P. nigriceps* and *P. bilineata* once occupied distinct areas, and, not coming into contact, were "species" in the sense of the term as generally adopted. *P. albiloris*, on the other hand, has never held this position, but is, in fact, *P. nigriceps bilineata* or *P. bilineata nigriceps*, according to which form most prevails in individual birds.

Fam. PARIDÆ.

LOPHOPHANES.

Lophophanes, Kaup, Skizz. nat. Syst. eur. Thierw. p. 92 (1829). (Type *Parus cristatus*, Linn.)
Bæolophus, Cabanis, Mus. Hein. i. p. 91 (1851). (Type *Parus bicolor*, Linn.)

This section of the Paridæ differs from true *Parus* chiefly, if not entirely, in having a more or less well-developed crest—a character of no great importance, but one which has been used by American writers to distinguish *Lophophanes* as a genus. Still further subdivision has been proposed by Cabanis, who placed the American species under the name *Bæolophus*, and applied the term *Machlolophus* to certain Indian species with long crests. Including all these under *Lophophanes*, the genus comprises about fifteen species, whereof four are American and one European, the rest being found in the mountainous parts of India, chiefly in the Himalaya range. Of the American species there is an eastern bird (*L. bicolor*) and a western (*L. inornatus*), the other two being found near the southern frontier. Both these last occur in Mexico.

1. Lophophanes atricristatus.

Parus atricristatus, Cassin, Pr. Ac. Phil. v. p. 103, t. 2[1].
Lophophanes atricristatus, Baird, Rev. Am. B. i. p. 78[2]; Baird, Brew. & Ridgw. N. Am. B. i. p. 90[3]; Sennett, Bull. U.S. Geol. Surv. iv. p. 6[4]; Merrill, Pr. U.S. Nat. Mus. i. p. 120[5].

Supra olivaceo-cinereus, alis et cauda fuscescentioribus, capite summo et crista elongata nigris; fronte et loris albis, genis griseo tinctis; subtus albidus, hypochondriis et crisso rufescentibus; rostro plumbeo-nigro, pedibus corylinis. Long. tota 5·0, alæ 2·6, caudæ 2·4, rostri a rictu 0·47, tarsi 0·7. (Descr. exempl. ex Vera Cruz, Mexico. Mus. nostr.)

Hab. TEXAS, valley of the Rio Grande [1 3 4 5].—MEXICO [2], Vera Cruz (fide *Boucard, mus. nostr.*).

Lophophanes atricristatus is a bird of very restricted range, being confined to the valley of the Rio Grande, and thence probably passing southwards along the seaboard of Eastern Mexico as far as Vera Cruz, whence we have a specimen supplied us by M. Boucard. The bird has never, so far as we know, been obtained by collectors who have worked more in the interior of Southern Mexico. In Texas it is described as everywhere abundant and lively in its habits, as well as a good singer, having a loud

whistling song much like that of the Cardinal (*Cardinalis virginianus*)[4 5]. Though several nests with young have been found, no eggs have as yet been taken.

The specimens of *L. atricristatus* which were first described by Cassin were obtained in Texas by J. W. Audubon in 1850; but until comparatively recent times the bird has been very little known.

2. Lophophanes wollweberi.

Lophophanes wollweberi, Bp. Compt. Rend. xxxi. p. 478[1]; Scl. P. Z. S. 1858, p. 299[2], 1859, p. 373[3]; Baird, Rev. Am. B. i. p. 79[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 93[6]; Coues, B. Col. Vall. i. p. 117[7].

Parus annexus, Cass. Pr. Ac. Phil. v. p. 103, t. 1[8].

Lophophanes galeatus, Cab. Mus. Hein. i. p. 90[9].

Supra olivaceo-cinereus, vertice dorso concolori undique nigro marginata, crista elongata, stria postoculari cum gula nigra conjuncta et torque nuchali nigris; fronte, superciliis usque ad pectus productis et genis albis; subtus griseo-albescens; rostro nigro, pedibus obscure corylinis. Long. tota 4·8, alæ 2·6, caudæ 2·4, rostri a rictu 0·45, tarsi 0·67. (Descr. maris ex La Parada, Mexico. Mus. nostr.)

Hab. South-western United States, Arizona, New Mexico, and Western Texas[7].—Mexico, La Parada[2] and Talea[3] (*Boucard*), Mountains of San Diego, Orizaba (*Sumichrast*[5]), Tierra fria (*le Strange*).

This is a well-marked species of rather limited range, being found only in Arizona, New Mexico, and Western Texas[7] within the boundary of the United States, and again in Mexico in the highlands of the States of Vera Cruz and Oaxaca, as well as in the vicinity of the city of Mexico. It is doubtless found in many parts of the intermediate country, of the ornithology of which we know so little. Like *Parus meridionalis* it appears to be in Mexico an inhabitant of high ground, Prof. Sumichrast having observed it in the alpine region at an elevation of over 6000 feet above the sea[5].

Observers in the United States describe *L. wollweberi* as gregarious in habits, going about in flocks of twenty-five or more individuals[7]. Its nest and eggs have not been discovered up to the present time.

It is somewhat remarkable that the three names[1 8 9] bestowed upon this species all appeared within a few weeks of one another. That proposed for it by Bonaparte (*L. wollweberi*) has always been accepted, and has probably a slight priority.

PARUS.

Parus, Linnæus, Syst. Nat. i. p. 341 (1766) (partim).

Of this well-known genus one species enters our limits, being found exclusively in the high mountains of Southern Mexico. The genus itself (including *Pœcile*) contains about fifty species, and is one of wide range, extending throughout the Palæarctic and

Nearctic regions as well as to the Himalayas, Java, and West Africa, the South-African birds being barely separable as *Melaniparus*. No form of the family Paridæ is known from South America.

1. Parus meridionalis.

Parus meridionalis, Scl. P. Z. S. 1856, p. 293[1], 1857, p. 81[2], 1858, p. 299[3], 1859, p. 363[4]; Baird, Rev. Am. B. i. p. 81[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[6]; Salv. Cat. Strickl. Col. p. 63[7]

Supra cinereus; alis et cauda nigricantibus brunnescenti-cinereo limbatis; pileo toto cum nucha, gutture et cervice antica nigris, genis et capitis lateribus albis; abdomine cinereo brunnescenti tincto; pectore et ventre medio albidis; rostro nigro; pedibus plumbeis. Long. tota 4·8, alæ 2·5, caudæ 2·3, rostri a rictu 0·5, tarsi 0·75. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. Mexico (*T. Mann*[7]), El Jacale (*Sallé*[1]), La Parada (*Boucard*[3]), Jalapa (*de Oca*[4]), Moyoapam near Orizaba, 8200 feet (*Sumichrast*[6]), Tierra fria (*le Strange*).

This southern Tit, which has a general resemblance to the North-American *Parus atricapillus*, is only found, so far as we yet know, in the higher mountains of Southern Mexico, whence a specimen was sent to Strickland in 1844[7], where it was subsequently rediscovered by M. Sallé[1], and where several other collectors have met with it. Mr. Sclater, who described M. Sallé's specimens[1], afterwards[2] made a close comparison between it and *P. atricapillus*, which he was unable to do (for want of specimens) in his first notice of it. He was then able to point out that *P. meridionalis* is a fairly well-defined species; and this view has been confirmed by subsequent writers, who have left it full specific rank whilst placing several northern forms of *P. atricapillus* as "varieties" of that bird. The real affinity of *P. meridionalis*, as indicated by the absence of white edging to the feathers of the wings and tail, and its short tail, seems to be with *P. carolinensis*, a species which is found in the Southern States, and therefore geographically its nearest neighbour.

We have no account of the habits of *P. meridionalis* in Mexico; but it doubtless resembles in this respect most other *Pari*. Though only known as an inhabitant of Southern Mexico, we should not be surprised to hear of its being found in the Altos of Guatemala towards the frontier of the State of Chiapas.

PSALTRIPARUS.

Psaltriparus, Bonaparte, Compt. Rend. xxxi. p. 478 (1850). (Type *P. personatus*, Bp., =*Parus melanotis*, Hartl.)

This small genus contains three species, of which two are so closely allied as to be deemed geographical varieties of one another by recent writers on North-American birds; the third is well defined and is apparently exclusively found in Mexico and Guatemala, being the sole representative of the Paridæ in the latter country. The

members of the genus are all of small size, and are distinguishable from *Parus* by their long graduated tails, in which respect they approach the Old-World genus *Acredula*.

1. Psaltriparus melanotis.

Parus melanotus, Sandbach, Rep. Brit. Assoc. iv. p. 99 (1837, descr. nulla)[1].

Parus melanotis, Hartl. Rev. Zool. 1844, p. 216[2].

Psaltriparus melanotis, Scl. P. Z. S. 1858, p. 299[3], 1864, p. 172[4]; Baïrd, Rev. Am. B. i. p. 84[5]; Salv. Ibis, 1866, p. 190[6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[7]; Dugès, La Naturaleza, i. p. 140[8]; Baird, Brew. & Ridgw, N. Am. B. i. p. 108[9]; Salv. Cat. Strickl. Coll. p. 66[10].

Psaltria personata, Westermann, Bijdrag Dierk. i. p. 16, t.[11]

Psaltriparus personatus, Bp. Compt. Rend. xxxi. p. 478[12].

Supra fusco-brunneus, pileo toto plumbeo; alis et cauda dorso fere concoloribus paulo cinerascentioribus, capitis lateribus cum mento nigris; subtus rufescenti-albidus, gutture canescente; rostro et pedibus nigris. Long. tota 4·0, alæ 1·95, caudæ rectr. med. 2·2, rectr. lat. 1·7, tarsi 0·62. (Descr. maris ex La Parada, Mexico. Mus. nostr.)

♀ mari similis, sed loris et genis pallide brunneis nec nigris (cervicis posticis lateribus tantum nigris) distinguenda. Iride, ave vivo, pallide straminea. (Descr. fem. ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Mexico [1 10], Guanajuato (*Dugès* [8]), La Parada (*Boucard* [3]), Cayuilalpam (*Sallé* [5]), valley of Mexico (*White* [4], *le Strange*), alpine region of Vera Cruz (*Sumichrast* [7]); Guatemala [2], Sololá [6], Godines, Volcan de Fuego, San Lucas (*O. S. & F. D. G.*).

This species, though previously indicated as an inhabitant of Mexico [1], was first actually described from Guatemalan specimens [2], where it is confined to the district of the Altos, being found in most of the higher ranges of the Cordillera, between 7000 and 9000 feet above the sea. We observed it at several places in this region, between the hills near Sololá and the highest part of the road leading from the city of Guatemala to Antigua. In its habits *Psaltriparus melanotis* much resembles *Acredula caudata* of Europe. A small party of birds usually associate in a flock and fly from tree to tree, one bird following another at short intervals. When congregated in a tree they are restless like other *Pari*, and search the leaves and branches assiduously for food. In Mexico the species seems to be also confined to the highlands. Prof. Sumichrast puts it down as an inhabitant of the alpine region of the State of Vera Cruz, being found in the mountains of San Diego at an elevation of over 6000 feet [7]. M. Boucard also found it in the higher parts of the State of Oaxaca. Though included by Messrs. Baird, Brewer, and Ridgway in their work on the birds of North America [9], no specimens have as yet been obtained in that country; but Mr. Ridgway, when in the Humboldt Mountains of Nevada, saw what he believed to be birds of this species. In life the iris of *P. melanotis* is pale straw-colour.

AURIPARUS.

Auriparus, Baird, Rev. Am. B. i. p. 85 (1864). (Type *Ægithalus flaviceps,* Sundev.)

This genus, which contains but a single species, seems most nearly allied to *Ægithalus*, differing from it in several points, especially in its short tarsi and its peculiar coloration. Mr. Lawrence, who described the bird, as well as Sundevall, placed it in the genus *Conirostrum*, a view which Dr. Coues * seems inclined to indorse. The presence of the spurious primary, absent in *Conirostrum*, seems to preclude this view of its affinities if this character is of the value usually attributed to it. *Auriparus* is at once distinguishable from all other American Paridæ by its slender acuminate bill.

1. Auriparus flaviceps.

Ægithalus flaviceps, Sundev. Œfv. Vet. Ak. Förh. vii. p. 129[1].
Psaltria flaviceps, Scl. P. Z. S. 1856, p. 37[2].
Auriparus flaviceps, Baird, Rev. Am. B. i. p. 85[3]; Baird, Brew. & Ridgw. N. Am. B. i. p. 111[4]; Sennett, Pr. U. S. Nat. Mus. i. p. 121[5]; Merrill, Bull. U.S. Geol. Surv. iv. p. 6[6].
Conirostrum ornatum, Lawr. Ann. Lyc. N. Y. v. p. 112, t. 5. f. 1[7].

Supra fuscus, alis et cauda obscurioribus; capite toto flavo, pileo antico et fronte aurantiacis; subtus sordide albidus flavido vix tinctus; rostro et pedibus nigris. Long. tota 3·7, alæ 1·9, caudæ 1·7, rostri a rictu 0·45, tarsi 0·55. (Descr. maris ex Cape San Lucas, Lower California. Mus. nostr.)

Hab. North America, valleys of the Rio Grande [5 6] and Colorado [4], Lower California [4]. —Mexico, El Paso (*Emory* [3]), Saltillo (*Couch* [3]).

This pretty species is quite unknown in Southern and Central Mexico, but occurs in some numbers all along the northern frontier in the valleys of the Rio Grande and Colorado, being specially abundant at Cape San Lucas in Lower California[4]. It breeds throughout this district; and its curious large nest, which is described as being shaped something like a retort, has been noticed by most travellers in these regions. Except as regards its nesting-habits, accounts of this species are rather scanty; but it is described as having manners somewhat intermediate between those of the Tits and Warblers, being, at the same time, usually very shy.

Fam. SITTIDÆ.

SITTA.

Sitta, Linnæus, Syst. Nat. i. p. 177 (1766).

The genus *Sitta* comprises about sixteen species, whereof five are found in the continent of North America; and of these, two enter our territory, being found in the high mountains of Southern Mexico. Of the Old-World species five are variously distributed throughout the Palæarctic Region, and six are found in the Himalayas, India and Burmah, these last being the most highly-coloured of the genus, and one of them,

* B. Col. Vall. i. p. 129.

S. magna, a giant amongst the rest. Though allied to the Paridæ, the Nuthatches have sufficient differences of bill, feet, and general shape to justify their being placed in a separate family. Dr. Coues has described these points very fully in his 'Birds of the Colorado Valley,' where also a good account will be found of the habits of several American species.

1. Sitta aculeata.

Sitta aculeata, Cass. Pr. Ac. Phil. viii. p. 254[1]; Baird, Rev. Am. B. p. 86[2].
Sitta carolinensis, Scl. P. Z. S. 1856, p. 293[3], 1858, p. 300[4], 1859, pp. 363[5], 373[6] (nec Latham).
Sitta carolinensis (vel *aculeata*), Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[7].
Sitta carolinensis, var. *aculeata*, Baird, Brew. & Ridgw. N. Am. B. i. p. 117[8].
Sitta carolinensis aculeata, Coues, B. Col. Vall. i. p. 134[9].

Supra cæruleo-plumbea, pileo toto cum nucha sericeo-nigris, superciliis et capitis lateribus cum gula albis, corpore subtus fusco-albido, tibiis et crisso castaneis; caudæ rectricibus mediis dorso concoloribus, reliquis nigris, extimis utrinque pogonio externo (præter apicem) albis, his et duabus rectricibus utrinque proximis apicem versus albo maculatis; alis fusco-nigris, primariis intus ad basin albis, subalaribus nigerrimis; rostro obscure plumbeo, maxilla ad basin pallide corneo; pedibus corylinis. Long. tota 5·2, alæ 3·6, caudæ 1·9, rostri a rictu 0·85, tarsi 0·75. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Western and middle provinces of North America[8].—Mexico (*Sallé*[3]), La Parada[3] and Cinco Señores[4] (*Boucard*), Jalapa (*de Oca*[5]), Tierra fria (*le Strange*), Moyoapam and Popocatepetl (*Sumichrast*[7]).

Mexican specimens of this Nuthatch belong to the western form of *Sitta carolinensis* (which Cassin distinguished by the name *S. aculeata*), rather than to the eastern bird. The difference, however, between the two is very slight, consisting chiefly in the western bird having a much slenderer bill, and in the spots on the tertial feathers being obsolete instead of well defined. Though granted full specific rank by Cassin[1], and by Prof. Baird in his 'Review'[2], *S. aculeata* has since been placed as a "variety" or race of *S. carolinensis* by writers on North-American birds[8 9]. The relationship between the two is undoubtedly close; but, we believe, intermediate links have not yet been discovered connecting them. Anyhow, the position of the Mexican bird, with reference to those of the north, is best shown by calling it *Sitta aculeata*. In Mexico a certain amount of variation exists between birds of different localities, Mr. Sclater having shown[5] that Oaxaca specimens are smaller in all their dimensions than those from Vera Cruz; but all possess the attenuated bill of *S. aculeata*; and therefore the generally smaller size of Oaxaca birds is, perhaps, of not much significance. This Nuthatch would appear to be an inhabitant of the higher pine-forests of Southern Mexico, having been obtained by Prof. Sumichrast at Moyoapam at an elevation of 8200 feet, and at a great height on the sides of the volcano of Popocatepetl[7].

2. Sitta pygmæa.

Sitta pygmæa, Vig. Zool. Voy. Blossom, p. 25, t. 4. f. 2[1]; Scl. P. Z. S. 1859, p. 363[2]; Baird, Rev.

Am. B. i. p. 88[3]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 120[5]; Coues, B. Col. Vall. i. p. 139[6].

Supra cæruleo-plumbea, capite summo et nucha laterali brunnescentibus, loris et regione parotica paulo obscurioribus, macula nuchali media alba; subtus sordide alba; alis nigris, secundariis intimis plumbeis, reliquis plumbeo limbatis, primariis tertio, quarto et quinto ad basin albis et horum pogonio externo partim albo limbatis; rectricibus mediis dorso concoloribus, ad basin pro majore parte albis, reliquis nigris, duabus extimis utrinque fascia obliqua alba notatis et cæruleo-plumbeo terminatis; rostro plumbeo-nigro, ad basin pallidiore; pedibus nigrescentibus. Long. tota 3·7, alæ 2·75, caudæ 1·4, rostri a rictu 0·7, tarsi 0·6. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Western N. America, from the Rocky Mountains to the Pacific [6].—Mexico, Jalapa (*de Oca* [2]), Volcanoes of Orizaba and Popocatepetl (*Sumichrast* [4]).

This small Nuthatch was originally described by Vigors from specimens obtained at Monterey during the voyage of H.M.S. 'Blossom,' under the command of Captain Beechey [1]; and it has since been found to be very common in that locality and throughout the western slope of the Rocky Mountains, from Washington Territory to Southern California [5]. In Mexico it was found by de Oca [2], who sent specimens from Jalapa, which were probably obtained at a higher elevation, as Prof. Sumichrast tells us [4] that it is an inhabitant of the alpine region, ascending to the extreme limits of vegetation on the volcanoes of Orizaba and Popocatepetl. The habits of *S. pygmæa* have been fully described by American writers [5 6]; but nothing concerning it in Mexico has been recorded.

Fam. CERTHIIDÆ.

CERTHIA.

Certhia, Linnæus, Syst. Nat. i. p. 184 (1766).

This small but peculiar genus contains five species *, whereof *C. familiaris* is by far the best known, having the widest range, being found throughout Europe and North America; for it would now seem that *C. americana* is not really separable from the Old-World bird. Three others are peculiar to the Himalayas, a fifth being found in Mexico and Guatemala, southward of which points we find no trace of the genus.

1. Certhia mexicana.

Certhia mexicana, Reich. Handb. spez. Orn. p. 266 (ex Licht. Mus. Ber.); Scl. P. Z. S. 1856, p. 290[2], 1858, p. 297[3], 1859, pp. 362[4], 372[5]; Baird, Rev. Am. B. i. p. 90[6]; Salv. Ibis, 1866, p. 190[7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[8].

Certhia familiaris, var. *mexicana*, Baird, Brew. & Ridgw. N. Am. B. i. p. 128[9]; Coues, B. Col. Vall. i. p. 146[10].

Supra obscure fusca; capite summo, cervice postica et interscapulio albido striatis; uropygio læte castaneo; alis nigro-brunneis, primariis et secundariis albido bisectis fasciam alarem formante, pogoniis externis apicem versus albido marginatis, et plumis omnibus cum tectricibus alarum albo punctatis; subtus fusco-albida, gula fere alba, crisso rufescenti tincto; rostri maxilla nigrescente, mandibula ad basin flavescente; pedibus

* Cf. Dresser, 'Birds of Europe.'

obscure corylinis. Long. tota 5·1, alæ 2·45, caudæ 2·5, rostri a rictu 0·7, tarsi 0·55. (Descr. exempl. ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. MEXICO, Ranchos de Suapam (*Sallé*[2]), La Parada[3] and Cinco Señores[5] (*Boucard*), Jalapa (*de Oca*[4]), Orizaba (*le Strange*), Moyoapam, Popocatepetl, Peak of Orizaba (*Sumichrast*[8]); GUATEMALA, Volcan de Fuego[7], Totonicapam, ridge above San Gerónimo to Chilasco[7] (*O. S. & F. D. G.*).

Though included in several works on North-American birds[9 10], *Certhia mexicana* does not seem to have ever been found so far north; nor have we any record of its existence except in the higher mountains of Southern Mexico and Guatemala. As a species we are disposed to consider it quite distinct, a position that has of late not always been conceded to it[9 10]. Granting that *Certhia americana* of North America is inseparable from the European *C. familiaris*, *C. mexicana* seems to be always distinguishable by its altogether darker colouring, the richer chestnut of the rump, and the colour of the under surface, which contrasts strongly with the white under-plumage of its congener—differences which we have never, so far as the Guatemalan specimens are concerned, seen destroyed by examples of intermediate character. This view is not quite in accordance with that adopted by Mr. Dresser in his 'Birds of Europe,' where he unites the Mexican and North-American birds with *Certhia familiaris*, whilst he admits the distinctness of the Guatemalan bird. An examination of more Mexican specimens than we possess would settle the point; in the meantime our view is probably most in accordance with fact.

In Southern Mexico *Certhia mexicana* seems to be exclusively found in the higher mountains, Prof. Sumichrast including it amongst the birds of the alpine region of the State of Vera Cruz, being found on the lofty volcanoes of Orizaba and Popocatepetl[8]. In Guatemala we only found it in districts where extensive tracts of pine trees grow, such as the upper part of the Volcan de Fuego, at an elevation of from 10,200 feet to between 11,000 and 12,000 feet, and also near Totonicapam, as high as 10,000 feet. In Vera Paz we found it at a much lower elevation, amongst the pine trees on the spur of the range overlooking the plain of San Gerónimo, where the Indian ruins which now go by the name of Pueblo Viejo stand, which are less than 4000 feet above the sea. Near the same district we also found it at Santa Barbara, and in the pine-forests on the road to Chilasco, at an elevation of about 6000 feet.

The habits and notes of the species seemed quite to resemble those of the well-known European bird.

Fam. TROGLODYTIDÆ.

CAMPYLORHYNCHUS.

Campylorhynchus, Spix, Av. Bras. i. p. 77 (1824).
Heleodytes, Cabanis, Mus. Hein. i. p. 80 (1850). (Type *Formicarius griseus*, Sw.)

There are seventeen or eighteen species in this genus, all having a general structural

resemblance, but showing some diversity in colour. Two genera have usually been admitted under the names given above; but the characters dividing them are very slight, and some species have been placed first in one genus and then in the other. The formation of the nostril is the chief character by which they have been sought to be distinguished; but this proves to be not very trustworthy, such species as *C. jocosus* forming a connecting link between the two.

With the exception of one species found all along the southern frontier of the United States, and another in the promontory of Lower California, all the species belong to the Neotropical Region, Mexico and Central America being the metropolis of the genus, where no less than half its members are found. In South America *Campylorhynchus* ranges over nearly the whole country as far south as Bolivia; but none of the species are specifically the same as those of Central America.

The various species are usually somewhat gregarious in their habits, as many as ten or twelve individuals being often found together, except during the breeding-season. Though *C. brunneicapillus* is credited with a powerful song, our experience of these birds is that their notes are harsh, and that their song, if such it may be called, is far inferior to that of many Troglodytidæ.

A. Heleodytes.

Nares apertæ subrotundatæ; pileus fere unicolor.

a. *Nares apertæ, fere rotundæ; nucha haud striata.*

1. Campylorhynchus albibrunneus.

Heleodytes albobrunneus, Lawr. Ibis, 1862, p. 10[1]; Ann. Lyc. N. Y. vii. p. 470[2]; Scl. & Salv. P. Z. S. 1864, p. 344[3].

Campylorhynchus albibrunneus, Baird, Rev. Am. B. i. p. 98[4].

Brunneus, capite toto, cervice et corpore subtus cum tectricibus subalaribus pure albis, crisso brunneo subobsolete transfasciato; rostro et pedibus obscure brunneis. Long. tota 7·3, alæ 3·3, caudæ 3·1, rostri a rictu 1·1, tarsi 1·05. (Descr. maris ex San Pablo, Panama. Mus. nostr.)

Hab. Panama, Veraguas (*Arcé*), Frijole[4] and Lion-Hill Stations (*M'Leannan*[1 2]), San-Pablo Station (*O. S.*[3]).

This peculiar species has a very restricted range, all the specimens (with one exception) that we have seen having been obtained at some one of the stations on the Panama railway. It goes a little further into the Isthmus, having been sent from the neighbourhood of Veraguas by Arcé.

Mr. Lawrence first described it in 'The Ibis' from specimens sent him by M'Leannan[1], and afterwards included it in one of his lists of Panama birds[2]. When crossing the Isthmus in 1863, Salvin shot a bird of this species in some low trees near the railway at San-Pablo Station. It was seen climbing about the outer branches of a tree with the restless habits of a true *Campylopterus*[3].

Rhynchus
See corrigenda

2. Campylorhynchus capistratus.

Picolaptes capistrata, Less. Rev. Zool. 1842, p. 174[1]; Des Murs, Icon. Orn. pl. 63[2].

Campylorhynchus capistratus, Scl. P. Z. S. 1859, pp. 363[3], 371[4]; Scl. & Salv. Ibis, 1859, p. 8[5]; P. Z. S. 1870, p. 836[6]; Taylor, Ibis, 1860, p. 317[7]; Baird, Rev. Am. B. i. p. 104[8]; Salv. Ibis, 1866, p. 202[9]; Lawr. Ann. Lyc. N. Y. ix. p. 92[10].

Heleodytes capistratus, Cab. J. f. Orn. 1860, p. 409[11].

Campylorhynchus rufinucha, Lafr. Rev. Zool. 1845, p. 339[12]; Less. Descr. Mamm. et Ois. p. 285[13]; Baird, Rev. Am. B. i. p. 105[14]; Salv. Ibis, 1866, p. 191[15].

Troglodytes (*Campylorhynchus*) *cervicalis*, Licht. fide Cab. J. f. Orn. 1860, p. 409[16].

Supra læte castaneus, uropygio nigro transfasciato, capite summo et stria transoculari nigris; alis fusco-nigris, extus castaneo variegatis; cauda nigra, rectricibus maculis subapicalibus albis notatis, apicibus ipsis sordide griseo-fuscis, rectricibus duabus mediis fasciis quinque imperfectis ornatis, rectricum duarum utrinque extimarum pogonio externo albo maculato; corpore subtus et superciliis albis ochraceo vix tinctis; rostro corneo, mandibulæ basi albicante; pedibus corylinis. Long. tota 0·7, alæ 2·85, caudæ 2·8, rostri a rictu 1·1, tarsi 1·0. (Descr. maris ex Escuintla, Guatemala. Mus. nostr.)

Obs. Specimina quædam dorsum conspicue striatum habent, crissum fasciatum, et hypochondria maculis paucis nigris notata (unde *Campylopterus rufinucha*, Baird, ex Lafresnaye).

Hab. Mexico[12], Vera Cruz (*A. Lesson*[13]), Jalapa (*de Oca*[3]), Juquila and Playa Vicente (*Boucard*[4]), Mirador (*Sartorius*[8]), Chico (*Mus. Ber.*[16]; British Honduras, Belize[5]; Guatemala, plain of Zacapa, Chuacus[15] and Trapiche Grande in the Motagua valley, Savana Grande, Escuintla, Naranjo, and Retalhuleu in the Pacific-coast region (*O. S. & F. D. G.*); San Salvador, Acajutla and La Union (*O. S.*); Honduras, near the Pacific (*Taylor*[7]), San Pedro (*G. M. Whitely*[6]); Nicaragua, Realejo (*Lesson*[1]), San Juan del Sur (*O. S.*); Costa Rica, Punta Arenas (*J. M. Dow*), San Mateo (*J. Cooper*[10]), Bebedero (*Arcé*).

There has long been considerable doubt whether the bird described by Lesson from Realejo as *Picolaptes capistrata*[1] is distinct from one from Mexico, called by Lafresnaye *Campylorhynchus rufinucha*—the latter having the back conspicuously striped and the flanks sparsely spotted with black, the former having the back plain chestnut and the flanks without marks. Des Murs[2], when figuring the type of *C. capistratus*, considered *C. rufinucha* to have been applied to a younger individual of the former; and this view was generally accepted until Prof. Baird wrote his 'Review of American Birds' and reinstated *C. rufinucha* as a species[14]. We were at one time[15] disposed to follow Prof. Baird in thus recognizing two species; but now, by the light of additional specimens, we doubt the existence of more than one; for the extent of the markings of the back is found to be variable, and not correlated with the spotting of the flanks. Nor can we fix the birds with spotted backs to any special locality. Prof. Baird supposed *C. rufinucha* to be the species of Eastern Mexico; but we trace it in some of its characters to Costa Rica, specimens of the true *C. capistratus* being found at immediate points.

C. capistratus has a wide range in Central America, being found from the State of Vera Cruz in Mexico to Costa Rica. It nowhere occurs at a higher elevation than

about 3000 feet, and descends to the sea-level. In Western Mexico its place is taken by *C. humilis*; but in Western Guatemala it is very abundant, and thence passes down the coast of the Pacific, through San Salvador, Honduras, and Nicaragua, to the Gulf of Nicoya in Costa Rica. On the eastern side it is found, as already stated, in Vera Cruz; it also occurs in the valley of the Motagua in Guatemala [15], and near San Pedro in Honduras [6].

Though found in the outskirts of forests, its favourite resort is the more open parts of the country where Mimosæ abound. In such a district we found it nesting in the neighbourhood of Chuacus, the nest being placed in a low tree. This nest was a large loose structure, rather elongated in shape, with the opening at the end of the longer axis. The species is a restless noisy one, and has no song worthy of the name.

3. **Campylorhynchus humilis.**

Campylorhynchus humilis, Scl. Pr. Ac. Phil. 1856, p. 263 [1]; Baird, Rev. Am. B. i. p. 107 [2]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545 [3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 267 [4]; Bull. U.S. Nat. Mus. no. 4, p. 13 [5].

C. capistrato similis, sed minor, capite toto summo rufescente nec nigro et stria rictali utrinque nigra distinguendus. Long. tota 6·0, alæ 2·6, caudæ 2·3, rostri a rictu 0·9, tarsi 0·8. (Descr. maris ex Tehuantepeque. Mus. nostr.)

Hab. Mexico, Mazatlan (*Bell* [1 3]), Colima (*Xantus* [2 4]), San Juan del Rio (*Rébouch*), Juchitan (*Sumichrast* [3]), Santa Efigenia and Tehuantepec city (*Sumichrast* [5]).

This species is restricted in its range to Western Mexico, being found only in the States bordering the Pacific from Mazatlan to the Isthmus of Tehuantepec. It has been reported from Orizaba [2], but incorrectly, as Prof. Sumichrast has shown [3]. The last-named naturalist states [5] that it is the most common species of the genus on the shores of the Gulf of Tehuantepec, and is found as far as San Carlos on the road to Oaxaca. It is, he says, a lively bird, whose song at the time of mating is agreeable and varied. Except at this time, when it lives in pairs, it is almost always seen in small flocks. *Campylorhynchus humilis* was originally described by Mr. Sclater from a specimen in the collection of the Academy of Natural Sciences of Philadelphia, brought from Mazatlan by Mr. Bell [1], whence other specimens have since been obtained and compared with the type by Prof. Baird [2]. In general appearance *C. humilis* is not unlike *C. capistratus*, but is quite distinct from it, as pointed out above. It seems, however, to take the place of that species in Western Mexico, the two never being found together.

The iris of this species in life is described as of a bright brick-red colour, the bill blackish, and the basal half of the mandible and feet light plumbeous [4].

b. *Nares apertæ, ovales; nucha striata.*

4. Campylorhynchus jocosus.

Campylorhynchus jocosus, Scl. P. Z. S. 1859, p. 371 [1]; Cat. Am. B. p. 17, t. 3 [2]; Baird, Rev. Am. B. i. p. 106 [3]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 13 [4].

Sordide brunneus, capite summo nigricantiore, dorsi plumis nigro ocellatis et medialiter albo punctatis; cervice postica albo nigroque striata; superciliis albis, stria transoculari et altera (valde obsoleta) rictali nigris; alis fusco-nigricantibus, tectricibus sicut in dorso pictis, remigibus extus brunneo regulariter transvittatis; cauda nigricante, supra (cum uropygio) brunneo regulariter transfasciata, rectricibus duabus utrinque extimis in pogonio externo albo distincte maculatis, rectricibus quatuor utrinque extimis fascia subapicali alba notatis; subtus lactescenti-albus, pectore toto et abdomine maculis rotundis nigris conspicue notatis, gula immaculata; rostro nigro, pedibus corylinis. Long. tota 6·5, alæ 2·8, caudæ 2·5, rostri a rictu 1·1, tarsi 0·95. (Descr. exempl. ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mexico, Oaxaca [1], Tehuacan [2] (*Boucard*), Don Dominguello (*Sumichrast* [4]).

Little is known of this species, which has a restricted range in Mexico, extending from Tehuacan to Oaxaca. It was first discovered by M. Boucard near the latter town; and his specimens were described by Mr. Sclater. Since then other naturalists have found it in the same district. The iris of the living bird is described as of a red-brown colour; the bill blackish, and the feet dusky ash [4].

5. Campylorhynchus gularis.

Campylorhynchus gularis, Scl. P. Z. S. 1860, p. 462 [1]; Baird, Rev. Am. B. i. p. 109 [2].

Supra brunneus, dorsi plumis omnibus nigro ocellatis et medialiter albo punctatis, cervice postica albo nigroque conspicue striata; pileo toto brunnescenti-rufo unicolori, superciliis elongatis albis, stria postoculari et altera rictali utrinque nigris; alis fusco-nigricantibus, tectricibus sicut in dorso pictis, remigum pogonio externo pallide brunneo regulariter transvittato; cauda nigricante, apice late sordide albo, rectricibus quatuor mediis pallide brunneo variegatis, duabus proximis utrinque in pogonio externo rufescente albido maculatis, duabus extimis in utroque pogonio maculis magnis albis notatis; subtus lactescenti-albus, ventre rufescente, pectoris lateribus et hypochondriis nigro sparse maculatis; rostro plumbeo, pedibus pallide corylinis. Long. tota 7·0, alæ 2·8, caudæ 2·8, rostri a rictu 0·85, tarsi 0·85. (Descr. exempl. typici ex Mexico. Mus. P. L. Sclater.)

Hab. Mexico [1].

A single skin, obtained by Mr. Sclater from Mr. Gould in 1860, is all that is known of this species. The precise locality where it was obtained is not recorded; but the skin is made up somewhat in the manner of Floresi's preparations; and as many of that travellers' skins came into Mr. Gould's possession, it is not improbable that this skin once formed part of this collection. Floresi worked in Central Mexico, of the ornithology of which hardly any thing is known at present. Prof. Baird has suggested [2] that *C. gularis* is nearly related to *C. humilis*, differing from it chiefly in its spotted chest and flanks, and in the conspicuous longitudinal marks on the neck behind. It has also a shorter, more decurved bill; but the coloration of the head in both species is

similar. The colouring of the hind neck connects it with *C. jocosus*, which is really its nearest ally.

B. Campylorhynchus.

Nares sublineatæ, operculo sensim obtectæ.

c. *Pileus fere unicolor; dorsum longitudinaliter striatum.*

6. Campylorhynchus brunneicapillus.

Picolaptes brunneicapillus, Lafr. Mag. Zool. 1835, cl. ii. pl. 47 [1]; Heermann, Journ. Ac. Phil. ii. p. 263 [2]; Dugès, La Naturaleza, i. p. 140 [3].

Campylorhynchus brunneicapillus, Baird, Rev. Am. B. i. p. 99 [4]; Dresser, Ibis, 1865, p. 483 [5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 132 [6]; Coues, B. Col. Vall. i. p. 156 [7].

Supra brunneus, pileo toto unicolori; dorso toto maculis elongatis albis nigro utrinque limbatis notato; alis extus rufescente albo frequenter transfasciatis; cauda nigra, rectricibus mediis pallide brunneo indistincte transfasciatis, extimis maculis magnis albis in utroque pogonio notatis; subtus albus, abdomine imo et tibiis rufescente tinctis, pectore toto, gutture imo et hypochondriis maculis rotundis nigris permaculatis; crisso albescente maculis magnis nigris notato; rostro obscure plumbeo, mandibulæ basi albicante; pedibus pallide corylinis. Long. tota 7·0, alæ 3·2, caudæ 3·0, rostri a rictu 1·1, tarsi 1·0. (Descr. feminæ ex Mexico. Mus. nostr.)

Hab. North America, Rio Grande [5] and Colorado valleys, Southern California, Utah, and Nevada [6].—Mexico, Guaymas (*Heermann* [2]), Guanajuato (*Dugès* [3]), valley of Mexico (*le Strange*).

Though apparently common all along the northern frontier of Mexico, from the Atlantic to the Pacific, the only evidences we have of the occurrence of *C. brunneicapillus* further south are the statement of Dugès of its being found at Guanajuato and the specimens brought home by Mr. le Strange from the vicinity of the city of Mexico, one of which, through his kindness, we have in our collection. On the northern frontier it is described by naturalists who have worked in that region [2 5] as frequenting very arid country where cacti abound, its partiality to that plant having gained for it the name of the "Cactus-Wren." It even builds its loose purse-shaped nest in the cactus-plants, making it outwardly of grass and straw, and lining it with cotton or feathers [4]. Its notes are described as harsh and scolding, but its song as clear and ringing [6].

Lafresnaye's description and figure [1] are, as Prof. Baird says, not satisfactory; and as the locality of the original specimen is supposed to have been either California or Peru, there is a possibility that a different species from the one now under consideration should bear the name *C. brunneicapillus*. This name, however, has always been associated with the present species; and it is universally admitted that it would be unwise to disturb matters except on better grounds for so doing than at present exist.

7. Campylorhynchus guttatus.

Thryothorus guttatus, Gould, P. Z. S. 1836, p. 89[1].

Campylorhynchus guttatus, Lafr. Rev. Zool. 1846, p. 94[2]; Baird, Rev. Am. B. i. p. 108[3]; Lawr. Ann. Lyc. N. Y. ix. p. 199[4].

C. brunneicapillo affinis, sed supra paulo grisescentior et pileo pallidius brunneo, maculis corporis subtus multo paucioribus et in hypochondriis nec rotundis sed transversim extensis, abdomine quoque albicante nec rufescente differt. Long. alæ 2·85, caudæ 3·1, rostri a rictu 1·2, tarsi 1. (Descr. exempl. ex Progreso Yucatan [Smiths. Inst. no. 42401]. Mus. nostr.)

Hab. Mexico[1], Progreso and Celestin, Yucatan (*Schott*[4]).

Though described many years ago by Mr. Gould[1] nothing further was known of this species until Dr. Schott obtained several specimens of it in Northern Yucatan[4], where it would appear to be not uncommon, and where, we should not be surprised to find, it is exclusively found. Prof. Baird[3], judging from the description, rightly conjectured that its closest ally would prove to be *C. brunneicapillus*, and even supposed that it might be the same as that species. Dr. Schott's specimens, however, which came into Mr. Lawrence's hands for examination, enabled that naturalist to point out the differences between the two birds; and these differences we have given in our diagnosis.

No notes have as yet reached us on the habits of *C. guttatus*.

d. *Pileus variegatum; dorsum transversim striatum.*

8. Campylorhynchus zonatus.

Picolaptes zonatus, Less. Cent. Zool. p. 210, t. 70[1].

Campylorhynchus zonatus, Bp. Consp. i. p. 223[2]; Scl. P. Z. S. 1856, p. 290[3], 1859, p. 363[4]; Salv. & Scl. Ibis, 1860, p. 29[5]; Baird, Rev. Am. B. i. p. 104[6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545[7]; Lawr. Ann. Lyc. N. Y. ix. p. 92[8]; Bull. U.S. Nat. Mus. no. 4, p. 13[9].

Campylorhynchus nigriceps, Scl. P. Z. S. 1860, p. 461[10]; Baird, Rev. Am. B. i. p. 109[11].

Supra nigricans albido transfasciatus, plumis pilei griseo marginatis, collo postico albo striolato, superciliis indistinctis griseo-albidis; cauda nigra fulvescente transfasciata, rectricibus mediis grisescentibus; subtus albidus, ventre toto et crisso læte rufescentibus, gutture toto crebre maculis nigris notato, hypochondriis nigro transfasciatis; rostro corneo, mandibulæ basi albicante; pedibus flavescenti-olivaceis. Long. tota 7·5, alæ 3·3, caudæ 3·5, rostri a rictu 1·15, tarsi 1·1. (Descr. exempl. ex Choctum, Guatemala. Mus. nostr.)

Juv. (*C. nigriceps*, Scl.) supra niger fulvescenti læto maculatus, pileo omnino nigro; subtus fulvescens maculis vix ullis. (Descr. exempl. ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Mexico[2] (*le Strange*), Cordova (*Sallé*[3]), Jalapa (*de Oca*[4]), Mirador (*Sartorius*[6]), Orizaba (*Sumichrast*[7]), Guichicovi (*Sumichrast*[9]); Guatemala, near Dueñas[5], Volcan de Fuego, Tactic, Coban, Choctum, Alotepeque[6] (*O. S. & F. D. G.*); Costa Rica, Turrialba and Cervantes (*J. Carmiol*[8]), Tucurriqui (*Arcé, J. Zeledon*[8]).

This bird was originally described by Lesson as coming from California[1]; but this

locality has long since been proved to be erroneously ascribed to it, as it has never yet been found further north than Southern Mexico. Here, however, it would appear to be common in the temperate region of the eastern part of the country up to an elevation of 4300 feet, thence spreading to the hot lands of the State of Vera Cruz[7]. In Guatemala its distribution is extensive, including the low-lying lands north of Coban, as well as Alotepeque on the frontier of Honduras. In the forests of the Volcan de Fuego and the hills about Dueñas it is very common. It is generally found in companies of eight or ten, or even more, which usually keep about the upper branches of the forest-trees. Its cry is loud and incessant, having little resemblance to that of a Wren. Its flight, however, is rather Wren-like. It builds a large loose nest, composed chiefly of dried vegetable matter, including dead flowers, and measuring fifteen inches in depth and twelve in diameter. One we ascended to was in the upper branches of a tree, and had a side entrance near the top. It contained neither eggs nor young, though the old birds passed in and out several times.

In the higher parts of Costa Rica *C. zonatus* would appear to be just as common as in Guatemala; but it is absent from the intervening country, and further south we have no trace of it. In Colombia a near ally is found in *C. zonatoides*.

The young of *C. zonatus* differs considerably from the adult, having a black head and the under surface without the black spots of the old bird. These differences led Mr. Sclater to describe the young as *C. nigriceps* and to compare it with the black-headed *C. capistratus*[10]. The real position of *C. nigriceps* was shrewdly suspected by Prof. Sumichrast[7]; and his opinion has since been confirmed by specimens obtained by us, which, though agreeing with the types of *C. nigriceps*, are undoubtedly young examples of *C. zonatus*.

There is considerable diversity between individual specimens of the adult bird as regards the number of spots on the throat and breast. In some these are much more thickly spread than in others; but the variation does not seem to be due either to a difference of sex or of locality, but are simply individual peculiarities.

The iris of *C. zonatus* in life is cinnamon-red, the maxilla black, the mandible horny, and the feet yellowish olive[9].

9. **Campylorhynchus pallescens.**

Campylorhynchus pallescens, Lafr. Rev. Zool. 1846, p. 93[1]; Baird, Rev. Am. B. i. p. 101[2]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 544[3].

Campylorhynchus megalopterus, Scl. P. Z. S. 1858, p. 298[4], 1859, pp. 363[5], 371[6] (nec Lafr.).

C. zonato affinis, sed supra grisescentior maculis pallidis transversis latioribus et cauda magis distincte transfasciata; subtus fere omnino griseo-albus, maculis fuscis paucioribus notatus. Long. tota 6·8, alæ 3·4, caudæ 3·1, rostri a rictu 0·9, tarsi 1·1. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Juv. C. zonato ejusdem ætatis similis, sed omnino grisescentior et subtus ventre magis distincte fasciato distinguendus. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. Mexico [1], La Parada [4] and Llano Verde [6] (*Boucard*), Jalapa (*de Oca* [5]), Orizaba (*Sumichrast* [3], *le Strange*).

For some years this bird was supposed by Mr. Sclater to be the *Picolaptes megalopterus* of Lafresnaye, described in 1845; but Prof. Baird, who examined the question very fully [2], came to the conclusion that the name *C. pallescens* was more strictly applicable to it; and his verdict has since been allowed to stand.

The species is restricted in its range to the highlands of Southern Mexico, the alpine region of the States of Vera Cruz and Oaxaca being its home, where it would appear to be by no means uncommon. Prof. Sumichrast [3] gives as its vertical range 5000 to 6500 feet, and says that he does not doubt that de Oca's specimens from Jalapa were obtained in the neighbouring mountains. It would thus seem to occupy a more elevated tract of country in Mexico than *C. zonatus*, which is also found in the same States.

We have no trace of the species in Guatemala, or elsewhere in Central America; but in Ecuador a closely allied bird, *C. balteatus*, occurs, in the western parts of that country.

Of the true *C. megalopterus*, said by its describer, Lafresnaye, to be from Mexico, we have had no tidings of late years; nor has it been satisfactorily shown to what country it actually belongs, if, indeed, it is really distinct from *C. pallescens*.

SALPINCTES.

Salpinctes, Cabanis, Arch. f. Naturg. xiii. p. 323 (1847) (type *Troglodytes obsoletus*, Say); Baird, Rev. Am. B. i. p. 109.

This genus and *Catherpes* have remarkably weak feet and toes compared with other genera of Troglodytidæ, the lateral toes being very short. This is especially the case in *Salpinctes*, in which the inner toe (without the claw) falls short of the distal end of the second phalange of the middle toe, and the outer toe hardly passes it. All the claws in these two genera are much compressed, and have a deep lateral depression on each side. The tarsus in *Salpinctes* is peculiar in having the posterior surface enclosed in several scutellæ instead of a single plate, as in *Catherpes* and Troglodytidæ generally. The bill is long, and depressed in a rather abrupt curve towards the end, near which a slight notch is visible on the cutting-edge. The nostril is elongated, a membrane slightly overhanging it. The nasal opening is pointed at its distal and rounded at its proximal ead. The texture of the plumage is soft.

Until quite recently, *Salpinctes* contained but a single species, though *Catherpes* was for some time associated with it. A second species or race has since been discovered inhabiting the small island of Guadalupe, situated in the Pacific Ocean off the coast of California *.

* Ridgway, Bull. U.S. Geol. & Geogr. Surv. of Terr. ii. no. 2. p. 185.

The metropolis of the genus is the Rocky Mountains, whence it spreads through the Mexican and Guatemalan highlands.

1. Salpinctes obsoletus.

Troglodytes obsoleta, Say, Long's Exp. ii. p. 4[1].

Salpinctes obsoletus, Cab. Arch. f. Naturg. xiii. p. 323[2]; Scl. P. Z. S. 1859, p. 371[3]; Scl. & Salv. Ibis, 1860, p. 30[4]; Baird, Rev. Am. B. i. p. 110[5]; Dugès, La Natur. i. p. 139[6]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 13[7]; Baird, Brew. & Ridgw. N. Am. B. i. p. 135[8]; Coues, B. Col. Vall. i. p. 159[9].

Troglodytes latifasciatus, Licht. Preis-Verz. mex. Vög. p. 2[10] (J. f. Orn. 1863, p. 57).

Supra fusco-griseus obsolete fusco transfasciatus, plumis singulis maculis albis (apicalibus) et nigris (subapicalibus) notatis, uropygio rufescente; alis et cauda media fuscis nigro frequenter transfasciatis, rectricibus lateralibus fulvo et nigro late transfasciatis; superciliis indistincte albidis; subtus albescens, hypochondriis paulo rufescentibus, gula sparsim nigro striata, abdomine toto maculis paucis nigris notato, crisso nigro variegato; rostro et pedibus obscure corneis. Long. tota 5·5, alæ 2·6, caudæ 2·1, tarsi 0·8, rostri a rictu 0·85. (Descr. exempl. ex Cachil, Guatemala. Mus. nostr.)

Hab. Central region of North America and Lower California[8].—Mexico, Coahuila (*Couch*[8]), Guanajuato (*Dugès*[6]), Apam (*le Strange*), Oaxaca (*Boucard*[3]), Cacoprieto, Tehuantepec (*Sumichrast*[7]); Guatemala[4], Quezaltenango, Salamá, Rabinal, Quiché, and Jutiapa (*O.S. & F.D.G.*); San Salvador, Volcan de Conchagua (*O.S.*).

The Rock-Wren (by which name this bird is commonly known in the United States) has a wide range throughout the Rocky Mountains, where it was first discovered by Say, who accompanied Long's expedition[1]. It is found from British Columbia and Vancouver's Island to Cape San Lucas, and southwards through Mexico to Guatemala and even as far as the Gulf of Fonseca. It is, however, generally considered an inland rather than a coast species, and in the mountains is found at considerable elevations. Its nesting-habits are well known; and observations respecting them have been collected by Dr. Coues in his 'Birds of the Colorado Valley'[1]. Though noticed by many travellers in Mexico, we have no further account of it in that country beyond records of the places where it is found. In Guatemala it often came under our observation, as it occurs in some numbers in the hills surrounding the plain of Salamá wherever open stony places are found. Thus, when descending the Salamá side of the Cuesta of Chuacus we usually saw these birds about some old walls near the foot of the hill; and, again, near the summit of the Cuesta of Cachil on the Coban road birds were seldom absent. These places are at the comparatively low elevation of from 3000 to 4000 feet above the sea. *Salpinctes obsoletus*, however, was more numerous about Quezaltenango, at an elevation of 8000 feet, the stony barren hill-sides of that district being apparently well suited to its habits. It is probably a resident species in Guatemala as elsewhere; our specimens were obtained at Cachil in November, and at Quezaltenango in August; and it was observed at the latter place in February. In March, too, Salvin observed it at

the top of the volcano of Conchagua, at an elevation of about 4000 feet, this mountain forming the north-western extremity of the Gulf of Fonseca. Here, too, it was on open barren stony ground. The wide gap in the range of this species between Conchagua and Quezaltenango is partly bridged by specimens having been observed near Jutiapa, in Guatemala, not far from the frontier of San Salvador.

There is considerable diversity in the plumage of different specimens of this species, due, we believe, to season or age. Our Quezaltenango specimens, shot in August, have none of the characteristic black and white spots on the back; but the whole upper surface is transversely barred with black, giving the bird a very different appearance; a close examination, however, reveals a few freshly-moulting feathers of the normal type; so that we are led to infer that these specimens are either young birds or old ones in abraded plumage. A Cachil specimen killed in November is exactly like one from the Yellowstone River.

Concerning the name *Troglodytes latifasciatus* [10] little can be said, except that it may apply to this species. The description is exceedingly meagre; and, moreover, a fruitless search in the Berlin Museum for Lichtenstein's type leaves us with nothing but the description upon which to form an opinion.

CATHERPES.

Catherpes, Baird, B. N. Am. p. 356 (1858). (Type *Thryothorus mexicanus*, Sw.)

Though the feet are somewhat stouter in this genus than in *Salpinctes*, the relative length of the toes is about the same, and the feet are more feeble than in other Troglodytidæ. The posterior covering of the tarsus is of the normal type, being a single plate instead of several, as in *Salpinctes*. The bill is long and slender, and without subterminal notch. The nostril is shaped much as in *Salpinctes*.

Two species constitute this genus, one of which, *C. mexicanus*, is rather variable in its characters, at least in Mexico, but more stable towards the northern limits of its range. The second species is only known from a single specimen obtained in the Mexican State of Vera Cruz.

1. Catherpes mexicanus.

Thryothorus mexicanus, Sw. Zool. Ill. ser. 2. i. t. 11[1].

Salpinctes mexicanus, Cab. Arch. f. Naturg. xiii. p. 323[2]; Scl. P. Z. S. 1857, p. 212[3], 1858, p. 297[4].

Catherpes mexicanus, Baird, B. N. Am. p. 356[5]; Scl. P. Z. S. 1864, p. 172[6]; Baird, Rev. Am. B. i. p. 111[7]; Dresser, Ibis, 1865, p. 484[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545[9]; Lawr. Mem. Bost. Soc. N. H. ii. p. 268[10]; Dugès, La Natur. i. p. 139[11].

Catherpes mexicanus, var. *conspersus*, Baird, Brew. & Ridgw. N. Am. B. i. p. 139[12].

Catherpes mexicanus conspersus, Coues, B. Col. Vall. i. p. 164[13].

Troglodytes murarius, Licht. Preis-Verz. mex. Vög. p. 2[14] (J. f. Orn. 1863, p. 57).

Thriothorus guttulatus, Lafr. Rev. Zool. 1839, p. 99 [15].
Certhia albifrons, Girard, B. Texas, t. 18 [16].

Supra nigro-brunneus, pileo obscuriore; dorso toto et cervicis lateribus albo nigroque stellato; cauda rufa nigro anguste transfasciata, supracaudalibus rufis nigro maculatis; alis fuscis nigro obsolete transfasciatis; subtus gutture toto albo, pectore rufo, ventre brunneo punctulis nigris albido terminatis notato; rostro obscure corneo, mandibulæ basi albicante; pedibus nigris. Long. tota 5·5, alæ 2·5, caudæ 2·1, tarsi 0·8, rostri a rictu 1·1. (Descr. exempl. ex Tehuantepec. Mus. nostr.)

Hab. South-western parts of CENTRAL NORTH AMERICA, Utah, Colorado, Arizona, Texas [8], &c.[12 13].—MEXICO [15], Tepic (*Grayson* [10]), Guadalaxara (*Grayson*[10], *Dugès*[11]), Guanajuato (*Dugès* [11]), Real del Monte (*Morgan* [1]), Rio Coahuayana (*Xantus* [7]), Mirador (*Sartorius* [7]), Yuantepec (*Deppe*, *Mus. Berol.*), valley of Mexico (*White* [5], *le Strange*, *Sumichrast* [9]), Orizaba (*Botteri* [3]), State of Vera Cruz (*Sumichrast* [9]), Oaxaca (*Boucard* [4]), Santa Efigenia, Tehuantepec (*Sumichrast*).

Specimens of this Wren from America north of Mexico have been separated from the Mexican bird by Mr. Ridgway as a geographical race under the name of *Catherpes mexicanus*, var. *conspersus* [12]; the differences observable between the two being stated to be the greater curvature of the bill of the northern bird, the head and neck above being thickly marked with white spots, the colours of the under surface more blended, as well as other minor points. The validity of these distinctions is confirmed by Dr. Coues [13], and, we have no doubt, indicate that the northern bird is fairly constant in its characters. But when Mexican examples are compared, we find great diversity both in the size of the bill and in the coloration of the plumage. A specimen from Sallé's collection from Southern Mexico is barely distinguishable from one of Mr. Henshaw's specimens from Arizona, whilst a Tehuantepec example exhibits all the characters attributed by Mr. Ridgway to the true *C. mexicanus*. We possess other Mexican specimens which are intermediate, having the bill of the southern bird and the plumage of the northern. It would seem, then, that *C. mexicanus* is a variable species in Mexico, but that in the northern parts of its range it is more constant in its characters.

The Mexican bird was first described by Swainson in 1829 [1] from specimens obtained at Real del Monte. Two years afterwards Lichtenstein named Deppe's birds as *Troglodytes murarius* [14], under which name the specimens still stand in the Berlin Museum. Again, in 1839, Lafresnaye renamed it *Thryothorus guttulatus* [15]; and, lastly, in 1841, Giraud included it amongst his sixteen birds of Texas, under the title of *Certhia albifrons* [16]. All these names apply to the Mexican race.

In North America *C. mexicanus* is usually found in the cañons of the south-western portion of the United States, which form so characteristic a feature in the physical geography of that district; and from this, its favourite resort, it is called the Cañon Wren [13]. But it by no means only frequents such barren localities, being also found about walls and houses, where its familiar habits make it a general favourite [8 12]. Its song is described as a series of loud clear notes, uttered in a simple descending scale [13].

It breeds amongst rocks and in walls, laying four white eggs thickly covered with large blotches of a reddish or cinnamon-brown [12].

In Mexico *Catherpes mexicanus* seems to be universally distributed, from Tepic in the north-west throughout the central plateau to Oaxaca and Tehuantepec in the south; but it has not yet been detected in Guatemala, though it might not unreasonably be looked for in the Altos bordering the Mexican State of Chiapas. Prof. Sumichrast says it is also found in the temperate region in the department of Vera Cruz. It builds in the houses of Orizaba, making a skilfully-wrought nest of spiders' webs, which it places in crevices of old walls or in the interstices between the tiles of the roofs of houses [9].

2. **Catherpes sumichrasti.**

Catherpes sumichrasti, Lawr. Pr. Ac. Phil. 1871, p. 233[1].

Brunneus, uropygio et alis obscurioribus, capitis lateribus paulo pallidioribus, gula grisescenti-rufa, pectore fasciis angustis crebris obscuris notato, abdomine maculis minutis albis nigro circumcinctis ornato, hypochondriis indistincte fasciatis, crisso nigricanti-brunneo; rostri maxilla nigricante, mandibulæ basi flavicante; pedibus nigricantibus. Long. tota (absque cauda) 5·0, alæ 2·75, rostri a rictu 1·2, tarsi 1·2. (Descr. exempl. typici ex Mexico. Mus. Smiths.)

Hab. Mexico, Mata Bejuco (*Labarraque* [1]).

Through Mr. Lawrence's kindness we recently had an opportunity of examining this interesting and distinct bird; and had the specimen been perfect, we should have figured it in this work. So far as we can see, Mr. Lawrence's views as to its position seem correct; but this cannot be assured until the form of the tail (entirely wanting in the only known specimen) is known. In general appearance the bird resembles *Catherpes mexicanus*, except as regards its throat, which is rufous with a greyish tinge instead of white; it is also a considerably larger bird.

The single specimen in the Smithsonian collection was forwarded to that institution by Prof. F. Sumichrast, he having obtained it from Señor T. Labarraque, who found it at a place in the State of Vera Cruz called Mata Bejuco. No further details of the species have yet come to light.

CYPHORHINUS.

Cyphorhinus, Cabanis, Arch. f. Naturg. Jahrg. x. 1, p. 282 (1844) (type *C. thoracicus*, Tsch.); Baird, Rev. Am. B. i. p. 112.

This genus was based upon a bird obtained by Tschudi in Peru, and called by him *C. thoracicus*, since supposed by several writers to be identical with *Thryothorus modulator* of d'Orbigny. d'Orbigny's bird, however, is quite distinct, a most obvious difference being its much shorter tail. The genus itself is a remarkable one, on account of the peculiar form of the nostril, which is small and circular, and situated

in the middle of the soft membrane which occupies the nasal fossa. The bill, too, is much compressed at the base, and has the culmen rather abruptly bent just above the nostril. These characters distinguish *Cyphorhinus* from all other Troglodytidæ.

Six species are now known of this genus, whereof *C. musicus* is peculiar to Guiana, *C. modulator* to Bolivia and the Upper Amazon, *C. thoracicus* to Peru, *C. phæocephalus* to Ecuador and the Cauca valley, *C. dichrous* to the Cauca valley, and *C. lawrencii* to Central America as far north as Costa Rica. South-eastern Brazil has no known species of the genus.

1. Cyphorhinus lawrencii.

Cyphorhinus cantans, Lawr. Ann. Lyc. N. Y. vii. p. 293 [1] (nec Gm.).

Cyphorhinus lawrencii, Scl. MS.; Lawr. Ann. Lyc. N. Y. viii. p. 5 [2], ix. p. 92 [3]; Baird, Rev. Am. B. p. 113 [4]; Scl. & Salv. P. Z. S. 1864, p. 345 [5]; Ex. Orn. p. 41, t. 21 [6].

Supra fuscus, alis et cauda extus nigro frequenter transfasciatis; regione auriculari, mento, gutture et pectore toto castaneis; ventre medio cinereo, hypochondriis et crisso brunnescentibus; rostro corneo; pedibus fuscis. Long. tota 5·0, alæ 2·5, caudæ 1·5, tarsi 0·95, rostri a rictu 0·9. (Descr. maris ex Panama. Mus. nostr.)

Hab. Costa Rica, Angostura [3] and Valza (*Carmiol*); Panama, Lion Hill (*M'Leannan* [1 2 5]), Chepo (*Arcé* [6]).

This is a species of restricted range, being confined to the Colombian State of Panama and to Costa Rica; but in the former district we have only seen specimens from the Panama Railway, and from Chepo forty miles south of it. Its nearest ally is *C. phæocephalus*, an Ecuadorean species which has also occurred at Remedios, in the State of Antioquia *. From this it differs in having the belly cinereous, instead of chestnut like the throat. *C. musicus* of Guiana has also a cinereous belly, but is again distinguishable by having distinct black and white streaks on the side of the neck, of which there are no traces in the present bird.

Cyphorhinus lawrencii was one of M'Leannan's discoveries, specimens of it having been included in the first collection sent to Mr. Lawrence from the isthmus of Panama. These were at first supposed to belong to the *C. musicus* of Guiana, = *C. cantans* (Gm.) [1]—an error pointed out by Mr. Sclater, to whom Mr. Lawrence submitted his specimens [2].

We have no account of the habits of *C. lawrencii*; but from its resemblance to species owning the suggestive names *C. musicus* and *C. modulator*, it is doubtless a good songster.

* Sclater and Salvin, P. Z. S. 1879, p. 492.

MICROCERCULUS.

Microcerculus (section of *Cyphorhinus*), Sclater, Cat. Am. B. p. 19 (1862); Baird, Rev. Am. B. i. p. 113 (1864). (Type *Turdus bambla*, Bodd.)

This name was first used by Mr. Sclater to designate a section of *Cyphorhinus*, and afterwards employed in a generic sense by Prof. Baird, who, however, was unable fully to describe some of the characters, owing to the imperfection of his specimens.

Like *Cyphorhinus*, *Microcerculus* has a compressed bill, high at its base, but not so high or so much compressed as in that genus. The form of the nostril is quite different, being partially covered by a membrane; the nostril itself touches the lower edge of the nasal fossa, and is comma-shaped, the tail of the comma pointing forwards. No septum or division is visible externally; and therefore the nostril appears single, and not double, as supposed by Prof. Baird. The tail in *Microcerculus* is very short, hardly exceeding half the wing.

In general dimensions this genus is considerably less than *Cyphorhinus*, differing, too, in the prevailing dark brown colour of its plumage.

Six species of *Microcerculus* are now known. These are distributed as follows:—Guiana has *M. bambla* peculiar to itself; in Eastern Ecuador *M. albigularis* is alone found; Peru and Colombia share *M. marginatus*; whilst to the interior of Venezuela, near the Colombian frontier, *M. squamatulus* appears to be restricted; then we have our two Central-American species, *M. luscinia* of the Colombian State of Panama and *M. philomela* of Northern Vera Paz. *Microcerculus*, like *Cyphorhinus*, is absent from South-eastern Brazil.

1. **Microcerculus philomela.** (Tab. V. fig. 3.)

Ruiseñor, Salv. Ibis, 1861, p. 144[1].
Cyphorhinus philomela, Salv. P. Z. S. 1861, p. 202[2]; Ibis, 1861, p. 352[3].
Microcerculus philomela, Baird, Rev. Am. B. i. p. 114[4] (partim).

Supra brunneus, plumis anguste nigro marginatis, pileo et uropygio obscurioribus; subtus fuliginosus, plumis medialiter nigris et nigro terminatis, gula pallidiore, hypochondriis brunneis nigro transfasciatis; alis caudaque nigris, alarum tectricibus majoribus macula parva subapicali ochrascenti-alba notatis; rostro nigro; pedibus fuscis. Long. tota 4·0, alæ 2·3, caudæ 1·0, tarsi 0·85, rostri a rictu 0·8. (Descr. exempl. typ. ex Vera Paz. Mus. nostr.)

Hab. GUATEMALA, Choctum [2 3], forests above Lanquin [1], forests between Cahabon and San Luis (*O. S. & F. D. G.*).

This interesting little species seems to be restricted to the vast forests of Northern Vera Paz, which lie between the Coban highlands and the department of Peten. It was during an expedition in search of Quezals, in the mountains above Lanquin, that Salvin first came across it, hearing its remarkable song, but unable to secure specimens [1]. These were afterwards obtained by a native collector between Choctum and Chisec, and described in the 'Proceedings of the Zoological Society' [2]. The bird was

subsequently not unfrequently met with in the same districts, and often heard in the forest country lying between Cahabon and San Luis. The song of *M. philomela* is remarkable for its sweetness and for the high notes of which it is composed. It is clear and melodious, without having much variation. The bird appeared well known to the native hunters under the name of "Ruiseñor" (or Nightingale), a title its vocal powers have gained for it. We only found it in the undergrowth of the virgin forest, where, but for its song, it would be a most difficult bird to see, owing to its small size and the sombre tints of its plumage.

Some diversity of colour is observable in different specimens of this bird, the throat of some being much lighter-coloured and the crescent-shaped marks of the under surface paler. These examples may have been young birds.

2. **Microcerculus luscinia.** (Tab. V. fig. 4.)

Cyphorhinus bambla?, Lawr. Ann. Lyc. N. Y. vii. p. 320 [1] (nec Bodd.).
Cyphorhinus philomela, Lawr. Ann. Lyc. N. Y. vii. p. 467 [2] (nec Salv.).
Microcerculus philomela, Baird, Rev. Am. B. i. p. 114 [3] (partim, nec Salv.).
Microcerculus luscinia, Salv. P. Z. S. 1866, p. 69 [4], 1867, p. 134 [5].

M. philomelæ affinis, sed dorso haud transfasciato, gutture albido et corpore subtus haud fuliginoso lavato, rostro quoque longiore differt. Long. tota 4·0, alæ 2·2, caudæ 0·9, tarsi 0·85, rostri a rictu 0·85. (Descr. maris ex Santa Fe in Statu Panamensi. Mus. nostr.)

Hab. Panama, Santa Fé and Santiago (*Arcé* [5]), Lion Hill (*M'Leannan* [1 2 3]).

This Wren was a discovery of M'Leannan's, who shot a female specimen on the ground in the jungle, and sent it to Mr. Lawrence [1]. That naturalist at first referred it with doubt to the Guiana *M. bambla* [1], but afterwards to the Guatemalan *M. philomela* [2]. Prof. Baird, on examining this specimen and comparing it with one of *M. philomela*, considered it to be a more adult specimen of the last-named species [3]; and it was only on the receipt of two additional examples that Salvin separated the species under the name of *M. luscinia* [4]. The two are doubtless nearly allied; but the differences seem constant and sufficiently recognizable. No accounts of the habits of this bird have yet reached us.

Another near ally of *M. luscinia* is *M. albigularis*, Scl., from the valley of the Napo in Ecuador; but in that species the throat is of a purer white, the legs yellowish instead of dark brown, and it is smaller in all its dimensions.

UROPSILA.

Uropsila, Sclater and Salvin, Nomencl. Av. Neotrop. p. 155 (1873). (Type *Troglodytes leucogastra*, Gould.)

This genus contains but the type species, a bird which has been at different times assigned to *Troglodytes* by Mr. Gould, to *Cyphorhinus* by Mr. Sclater, to *Heterorhina* by

Prof. Baird, and lastly to a separate genus, *Uropsila*. This bird has a resemblance to *Henicorhina* in the proportions of its wings and tail, as well as its general coloration; but instead of the open nostril of the members of that genus, the nasal opening is overhung by a membrane just as in *Thryothorus*. As it also has a compressed lengthened bill and short tail, it may be conveniently placed next to *Microcerculus*.

The single species *U. leucogastra* is only known as an inhabitant of Southern Mexico.

1. Uropsila leucogastra.

Troglodytes leucogastra, Gould, P. Z. S. 1836, p. 89[1].
Uropsila leucogastra, Scl. & Salv. Nomencl. Av. Neotr. pp. 7, 155[2].
Cyphorhinus pusillus, Scl. P. Z. S. 1859, p. 372[3].
Heterorhina pusilla, Baird, Rev. Am. B. i. p. 119[4].

Murino-brunnea, loris et superciliis posticis albis; secundariis extus et cauda nigro obsolete transfasciatis; regione auriculari albo variegata; subtus alba lateraliter cinerascenti tincta, hypochondriis, ventre imo et crisso pallide brunneis; rostri maxilla plumbea, mandibula albida; pedibus pallide corylinis. Long. tota 3·5, alæ 1·75, caudæ 1·1, tarsi 0·75, rostri a rictu 0·7. (Descr. exempl. ex Mexico. Mus. P. L. Sclater.)

Hab. Mexico, Tamaulipas (fide *Gould*[1]), Playa Vicente (*Boucard*[3]).

Of this small species but little is known. Mr. Gould's description of a bird from Tamaulipas was long unrecognized or misapplied to the Mexican race of *Thryothorus bewicki*; and it was not until 1873 that its right title was restored to it[2], Mr. Sclater having in the meantime redescribed the species in 1859 under the name of *Cyphorhinus pusillus*[3]. When describing *C. pusillus* Mr. Sclater had four specimens before him, all from Playa Vicente, on the eastern side of the mountains of Oaxaca. One of these seems to have come afterwards into the possession of the Smithsonion Institution[4]. Besides these we have a single specimen said to be from Mexico, but without exact locality. A sixth is Mr. Gould's type, the fate of which is not known. These, so far as we are aware, are all the specimens that have been obtained up to the present time.

HENICORHINA.

Heterorhina, Baird, Rev. Am. B. i. p. 115 (1864) (nec Westwood, 1845, Coleop.). (Type *Scytalopus prostheleucus*, Scl., = *Cyphorhinus leucostictus*, Cab.)
Henicorhina, Sclater & Salvin, P. Z. S. 1868, p. 170, vice *Heterorhina*, Baird.

Prof. Baird first separated this small genus of Wrens from *Cyphorhinus*, with which its species had been perhaps more frequently associated than with any other; but the name chosen by him having been unfortunately previously used, *Henicorhina* was substituted for it in 1868. The open nostril lying at the anterior extremity of the nasal fossa, without any trace of an operculum, removes the genus at once from *Cyphorhinus* and also from *Microcerculus* and *Thryothorus*, and places it close to *Thryophilus*, in which genus the form of the nostril is quite similar. The very short tail, hardly exceeding

an inch in length, separates *Henicorhina* from *Thryophilus*, with which genus it might be not improperly placed as a section.

Only two species are now recognized of this species, both being found at different altitudes over nearly the same area from Mexico southwards. *H. leucosticta*, however, spreads eastwards into Guiana, and *H. leucophrys* southwards into Peru. The form is absent from South-eastern Brazil.

1. Henicorhina leucosticta.

Cyphorhinus leucostictus, Cab. Arch. f. Naturg. Jahrg. xiii. 1, p. 206 [1]; Lawr. Ann. Lyc. N. Y. vii. p. 320 [2], ix. p. 92 [3]; Bull. U. S. Nat. Mus. no. 4, p. 13 [4].

Microcerculus leucostictus, Scl. & Salv. P. Z. S. 1864, p. 345 [5].

Thryothorus leucostictus, Salv. P. Z. S. 1867, p. 134 [6].

Heterorhina leucosticta, Baird, Rev. Am. B. i. p. 117 [7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545 [8] (partim).

Henicorhina leucosticta, Salv. P. Z. S. 1870, p. 181 [9].

Scytalopus prostheleucus, Scl. P. Z. S. 1856, p. 290 [10].

Cyphorhinus prostheleucus, Scl. P. Z. S. 1858, pp. 63 [11], 96 [12], 1859, pp. 363 [13], 372 [14]; Scl. & Salv. Ibis, 1860, p. 397 [15].

Heterorhina prostheleuca, Baird, Rev. Am. B. i. p. 116 [16].

Supra brunnea, dorso postico rufescente, superciliis elongatis albis, capitis lateribus albo nigroque variegatis, tectricibus alarum apicibus albo maculatis; subtus alba lateribus cinereis, ventre imo et crisso castaneis; alis et cauda fusco-nigris, extus rufescente brunneo transvittatis; rostro nigro; pedibus corylinis. Long. tota 4·2, alæ 2·1, caudæ 1·0, tarsi 0·9, rostri a rictu 0·75. (Descr. maris ex Choctum, Vera Paz. Mus. nostr.)

Hab. Mexico [12], Papantla [1], Cordova (*Sallé* [10]), Jalapa (*de Oca* [13]), Orizaba (*Sumichrast* [8]), Llano Verde and Playa Vicente (*Boucard* [14]), Mirador (*Sartorius* [10]), Tierra Caliente (*le Strange*), Guichicovi, Tehuantepec (*Sumichrast* [4]); Guatemala, Choctum [15], forests between Cahabon and San Luis, Barranco Hondo and Savana Grande, Pacific slope (*O. S. & F. D. G.*); Costa Rica, Angostura and Turrialba (*Carmiol* [3]), Tucurriqui (*Arcé*); Panama, Boqueti de Chitra and Cordillera del Chucu [9], Santa Fé [6], Calobre (*Arcé*), Lion Hill (*M'Leannan* [2 5]).—Colombia; Venezuela; Ecuador [11]; Guiana [1].

When first describing this Wren, Dr. Cabanis had before him specimens from Guiana and from Mexico, which he considered to be identical. Subsequent investigations have detected the species in almost every intermediate locality, showing that it enjoys an uninterrupted range over this wide arca. On the receipt of the first Mexican specimens from M. Sallé, Mr. Sclater compared them with *Scytalopus griseicollis*, and, perceiving their difference, described the Wren as *S. prostheleucus* [11]. He soon [11 12] discovered that it was not a *Scytalopus* at all, but a very near ally of *Cyphorhinus leucostictus*, if not identical with it. The bird, however, retained this uncertain position for some years, until the gradually increasing materials enabled us to state in 1864 [5]

and again in 1867 [6] that we were unable to distinguish it from *Henicorhina leucosticta*; and from this time we have always looked upon the species as indivisible. Prof. Baird [7 16], in his 'Review of American Birds,' took the opposite view and granted each full specific rank; but when the characters he relied upon, such as the greater purity of the white colour of the under surface in the southern race, its smaller size, and the difference of the number and size of the spots on the shoulders and neck, are examined by the light of a large series of specimens, it will be seen that they cannot be considered of specific value.

Southern Mexico seems to be the limit of the northern range of *H. leucosticta*, where it is doubtless restricted to the lowland hot forests of the district. Prof. Sumichrast [8] indeed speaks of it as found in the hot, temperate, and alpine regions of the State of Vera Cruz; but we have no doubt, from our knowledge of the ranges of this species and of *H. leucophrys* in Guatemala, that he here has looked upon both as one, and that the birds noticed by him in the alpine region were of the latter species. In Guatemala we only found it in the low-lying forests of Northern Vera Paz, and also on the Pacific side of the mountains in the forests covering the slopes of the volcanos of Agua and Fuego. It is thoroughly Wren-like in its restless movements, keeping to the undergrowth of the virgin woods.

2. **Henicorhina leucophrys.**

Troglodytes leucophrys, Tsch. Arch. f. Naturg. Jahrg. x. i. p. 283 [1].
Heterorhina leucophrys, Baird, Rev. Am. B. i. p. 118 [2].
Cyphorhinus leucophrys, Lawr. Ann. Lyc. N. Y. ix. p. 92 [3].
Henicorhina leucophrys, Salv. P. Z. S. 1870, p. 181 [4].
Troglodytes guttatus, Hartl. Syst. Verz. d. Ges. Mus. p. 28 [5].
Cyphorhinus prostheleucus, Salv. & Scl. Ibis, 1860, p. 272 [6] (nec Sclater).
Heterorhina prostheleuca, Sumichrast, Mem. Bost. Soc. N. H. i. p. 545 [7] (partim).
Cyphorhinus griseicollis, Scl. & Salv. Ibis, 1860, p. 397 [8] (nec Lafr.).
Heterorhina griseicollis, Baird, Rev. Am. B. i. p. 117 [9] (nec Lafr.).

H. leucostictæ similis, sed corpore subtus plumbeo nec albo et tectricibus alarum immaculatis distinguenda. (Descr. exempl. ex Volcan de Agua. Mus. nostr.)

Hab. Mexico, Jalapa (*de Oca* [8]), Moyoapam, Vera Cruz (*Sumichrast* [7]); Guatemala, Volcan de Agua [6 8], Volcan de Fuego, Totonicapam (*O. S. & F. D. G.*); Costa Rica, San José (*v. Frantzius* [3]), Volcan de Irazu (*Rogers*); Panama, Mina de Chorcha, Cordillera del Chucu, Chitra, Calobre, Calovevora (*Arcé* [4]).—Colombia; Venezuela; Ecuador; Peru [1]; Bolivia.

Though described in 1844 by Tschudi from specimens obtained by him in Peru, where it has since been found by Jelski *, this species was many years before it found

* Taczanowski, P. Z. S. 1874, p. 504.

a final resting-place under Tschudi's name. Mexican and Central-American specimens were referred to the allied species *H. leucosticta* [6 7] and even to *Scytalopus griseicollis*, a member of the Pteroptochidæ [8 9]. A new name, *Troglodytes guttatus*, was also proposed for Colombian examples of the same bird [5]. Then, again, Prof. Baird at one time [2 9] considered that there were two recognizable species of this form, which he called *Heterorhina leucophrys* and *H. griseicollis*, the ranges of which overlapped. This view was opposed by Salvin [4] in 1870; and since then the bird seems to have settled down into the quiet possession of its title. We have now a large series of specimens, which prove that the slight amount of variation observable between them cannot be traced to any definite locality.

Henicorhina leucophrys is, so far as we know, a strictly highland species, being found in Guatemala in upland forests as high as 10,000 feet, but descending as low as 4000 feet or perhaps less. It is not uncommon in the forests of the volcanoes, where it takes the place of its near ally *H. leucosticta*, a lowland form. In Mexico it does not seem to be so well known; but in writing of *H. leucosticta* we have no doubt Prof. Sumichrast [7] refers to this species when he speaks of the alpine bird found at Moyoapam at an elevation of 6600 feet. Here he found its nest, which he describes as formed of mosses woven with great skill, the interior being lined with the red feathers from the breast of *Trogon mexicanus*. The nest was suspended to the branches of a shrub, and so skilfully disguised as to be easily mistaken for a bunch of moss. Salmon, who obtained its eggs at Frontino, in the Cauca valley of Colombia, describes them as either white or spotted with a few minute red spots *.

It is somewhat remarkable that this bird, being an inhabitant of highland forests, and whose range is therefore interrupted at several points, should have retained its specific features with such faithfulness. But such is the case; for it is quite as constant in its characters as its near congener *H. leucosticta*, whose lowland and therefore more unbroken range has doubtless assisted to keep it specifically true.

THRYOPHILUS.

Thryophilus, Baird, Rev. Am. B. i. p. 127 (1864). (Type *Thryothorus rufalbus*, Lafr.)

This genus was separated from *Thryothorus* by Prof. Baird chiefly on account of the difference it shows in the disposition of the membrane surrounding the nasal opening. In *Thryophilus* the nostril is situated at the extremity of the nasal fossa, and is oval in shape, with no membrane or scale overhanging it. The members of the genus thus restricted are larger birds and have considerably longer tails than the species of *Henicorhina*; but the two genera are closely allied, having the same form of nostril.

Thryophilus contains fourteen or fifteen species, which are spread over a wide area, extending from Western Mexico to South Brazil. The greater part of the species are

* Sclater and Salvin, P. Z. S. 1879, p. 493.

found within the limits of Central America and Mexico, our list containing eleven of the whole number; and of these only three pass beyond our borders into the southern continent, viz. the widely ranging *T. rufalbus*, *T. leucotis* and *T. nigricapillus*, two southern species which penetrate as far north as the State of Panama. The remaining eight species are all locally distributed, Costa Rica and Panama claiming the larger part.

A. *Caput fere dorso concolor.*

a. *Subtus immaculati.*

a'. *Crissum nigro transfasciatum.*

1. Thryophilus rufalbus.

Thriothorus rufalbus, Lafr. Rev. Zool. 1845, p. 337[1].
Thryothorus rufalbus, Scl. P. Z. S. 1856, p. 140[2]; Scl. & Salv. Ibis, 1859, p. 8[3]; P. Z. S. 1864, p. 345[4]; Cab. J. f. Orn. 1860, p. 408[5]; Lawr. Ann. Lyc. N. Y. viii. pp. 5[6], 175[7]; v. Frantzius, J. f. Orn. 1869, p. 291[8]; Salv. P. Z. S. 1870, p. 181[9].
Thryophilus rufalbus, var. *rufalbus* et var. *poliopleura*, Baird, Rev. Am. B. p. 128[10].
Thryophilus rufalbus, Lawr. Ann. Lyc. N. Y. ix. p. 92[11]; Salv. & Godm. Ibis, 1880, p. 116[12].
Thryothorus longirostris, Lawr. Ann. Lyc. N. Y. vii. p. 320[13] (nec Vieillot).
Troglodytes cumanensis, Licht. Nomencl. p. 34, fide Cab. J. f. Orn. 1860, p. 408[14].

Supra læte castanea pileo paulo obscuriore, alis extus et cauda nigro frequenter transfasciatis; superciliis distinctis et capitis lateribus albis, his nigro striolatis; subtus albus hypochondriis fuscescentibus, crisso nigro late transfasciato; rostro corneo mandibula albicante; pedibus flavescentibus. Long. tota 6·2, alæ 2·8, caudæ 2·3, rostri a rictu 1·0, tarsi 1·0. (Descr. maris ex Panama. Mus. nostr.)

Obs. Specimina ex Guatemala hypochondriis grisescentioribus differunt, unde var. *poliopleura*, Baird[10].

Hab. Guatemala, Volcan de Fuego, Dueñas, Savana Grande, San Diego, Escuintla, Retalhuleu, Coban (*O. S. & F. D. G.*); Costa Rica[5], San José (*v. Frantzius*[8]), Volcan de Irazu (*Rogers*), San Mateo (*Cooper*[11]), Bebedero (*Arcé*); Panama, David (*Bridges*[2], *Hicks*[7]), Boqueti, Chitra, Castillo, Calovevora (*Arcé*[9]), line of railway (*M'Leannan*[13], *O. S.*[4])[1].—Colombia, ~~Obispo~~ (*O. S.*)[12 14]; Venezuela; Trinidad.

Minca

Thryophilus rufalbus is subject to a slight amount of variation at various points of its wide range, which extends from Guatemala in the north to the South-American continent, where it is found in the countries lying along the northern shore. These variations have been fully described by Dr. Cabanis[5] and by Prof. Baird[10], and consist chiefly in the smaller size and more chestnut flanks of the southern as compared with the Panama bird, and in the greyish cast of the white of the under plumage of Guatemalan examples—differences observable, it is true, but so slight that we hesitate to pronounce the possessors of them to be distinct races. Though Lafresnaye stated that the bird upon which he bestowed the name *T. rufalbus* came from Mexico[1], a more southern origin for his type has latterly been attributed to it[5 10]—a supposition which is probably correct, seeing that the bird has not been detected in Mexico by recent travellers.

In Guatemala this Wren is a common bird, as we found it abundant at all seasons in the neighbourhood of Dueñas and even as high as Calderas in the Volcan de Fuego, at an altitude of over 7000 feet. It is also found equally abundant in the low-lying country bordering the Pacific, in the neighbourhood of towns and villages, at as low an elevation as 1000 feet above the sea. Specimens obtained on the line of the Panama Railway were found at a much lower elevation than this.

Its place of resort is usually moderately thick forest, choosing trees of dense matted growth rather than thickly grown underwood. Its song is powerful and melodious, but with no great variation.

2. **Thryophilus sinaloa.**

Thryophilus sinaloa, Baird, Rev. Am. B. i. p. 130[1]; Lawr. Mem. Bost. Soc. N. H. ii. p. 268[2].

T. rufalbo affinis, sed multo minor, corpore supra fuscescentiore et hypochondriis brunnescentioribus differt. Long. tota 5·2, alæ 2·2, caudæ 2·0, rostri a rictu 0·8, tarsi 0·9. (Descr. maris ex Mazatlan, Mexico [Smiths. Inst. no. 34016]. Mus. nostr.)

Hab. Mexico, Mazatlan (*Grayson*[1 2], *Xantus*[1]), Sinaloa (*Grayson*[2]), Colima (*Xantus*[1 2]).

This species may be considered to represent *Thryophilus rufalbus* in Mexico, where, however, it has a limited range, which does not appear to pass beyond the western coast of that country. Here its presence was detected by the two naturalists Grayson and Xantus, to whose exertions our knowledge of the ornithology of Western Mexico is almost entirely due. The following short note by the former traveller is the only account we have of the bird:—"This little Wren is common from Sinaloa to Tehuantepec. Its nest is usually built in the drooping branches of a thorn tree, thus giving the abode of the young some protection against the innumerable ants and other insects that would otherwise infest it. Most of its congeners build their nests in hollow logs, among roots of trees, &c. The nest is partly suspended from the branches, and built of fine grass. The eggs are usually five in number, and marked with small specks of a brownish colour."

b'. *Crissum immaculatum.*

3. **Thryophilus modestus.**

Thryothorus modestus, Cab. J. f. Orn. 1860, p. 409[1]; Lawr. Ann. Lyc. N. Y. viii. p. 5[2]; Scl. & Salv. P. Z. S. 1864, p. 346[3], 1870, p. 836[4]; Salv. Ibis, 1866, p. 205[5]; P. Z. S. 1870, p. 181[6].

Thryophilus modestus, Baird, Rev. Am. B. i. p. 131[7]; Lawr. Ann. Lyc. N. Y. ix. p. 92[8]; v. Frantzius, J. f. Orn. 1869, p. 291[9].

Thryothorus felix?, Salv. & Scl. Ibis, 1860, p. 397[10] (nec Sclater).

Thryothorus leucotis, Lawr. Ann. Lyc. N. Y. vii. p. 320[11] (nec Lafr.).

Thryothorus albipectus, Scl. Cat. Am. B. p. 20, partim[12] (nec Cabanis).

Supra obscure brunneus, pileo paulo cinerascentiore, alis caudaque rufescentioribus; cauda nigro transfasciata, alis obsolete transfasciatis; capitis lateribus albis nigro variegatis; superciliis elongatis, gutture et ventre medio albis; hypochondriis, ventre imo et crisso rufescentibus; rostro et pedibus plumbeis. Long. tota 5·2, alæ 2·4, caudæ 2·2, rostri a rictu 0·9, tarsi 1·1. (Descr. exempl. ex San José, Costa Rica. Mus. nostr.)

Hab. Guatemala, Volcan de Fuego, Dueñas[7], Savana Grande, Escuintla[10 12], Retalhuleu, Coban[5] (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely*[4]); Costa Rica, San José, Quebrada Honda (*Hoffmann*[1]), San José (*v. Frantzius*[7 9]), Guaitil (*Carmiol*[8]), San Mateo (*Cooper*[8]); Panama, Bugaba (*Arcé*[6]), line of railway (*M'Leannan*[2 3 11]).

Costa Rica furnished Dr. Cabanis with the types of this species, the range of which has since been traced to Guatemala in the north and to Panama in the south. Guatemalan examples agree very closely with the Costa-Rica bird; but those from the Isthmus are decidedly paler beneath, especially on the flanks, which are hardly tinged with the rufous so conspicuous in the Costa-Rican form—a point already noticed by Prof. Baird[7]. Except as regards size, the Panama bird approaches closely to *T. zeledoni*, the form of *T. modestus* found in the lowlands of the Atlantic side of the mountains of Costa Rica.

In Guatemala this Wren inhabits nearly the same districts as *T. rufalbus*, ranging from an elevation of 1000 to 5000 or 6000 feet. It is also distributed over a wide tract of country. It is, however, not quite so common a bird as *T. rufalbus*, nor are its notes so melodious.

After its first discovery in Central America, by Dr. Hoffmann in Costa Rica and by ourselves almost at the same time in Guatemala, it was several years before *T. modestus* came into quiet possession of its name. Our Guatemala birds were at first doubtfully referred to *Thryothorus felix*[10], and afterwards to *T. albipectus*[12]; and M'Leannan's examples from Panama were put under the name of *T. leucotis*[11]. An examination of all these specimens, in Mr. Lawrence's, Mr. Sclater's, and our own collections, has enabled us to determine that they all belong to *T. modestus*.

4. **Thryophilus zeledoni.**

Thryophilus zeledoni, Ridgw. Pr. U.S. Nat. Mus. i. p. 252[1] (ex Lawrence, MS.).

T. modesto similis sed major, colore omnino grisescentiore et fasciis caudæ nigris latioribus et distinctioribus distinguendns. Long. tota 5·4, alæ 2·5, caudæ 2·1, rostri a rictu 0·95, tarsi 1·0. (Descr. maris ex Costa Rica. U.S. Nat. Mus. no. 64689.)

Hab. Costa Rica, lowlands bordering the Atlantic (*J. Zeledon*[1]),

We are indebted to Mr. Ridgway's kindness for the loan of the only specimen of this Wren that has as yet come under our notice. The species is considered by its describer a well marked one, and allied to *T. modestus*, whose place it would appear to occupy in the low-lying lands bordering the Atlantic coast of Costa Rica, *T. modestus* being

from the higher mountainous interior of the country. *T. zeledoni* has a close resemblance to the Panama race of *T. modestus* in its pale colour; but the Panama bird is smaller, not larger, than *T. modestus*. As regards the ranges in altitude of these species ascribed to them in Costa Rica[1], no deduction of much value can be drawn; for in Guatemala we found *T. modestus* at elevations varying as much as 5000 feet and at less than 1000 feet above the sea-level. It is therefore hardly likely to be restricted in Costa Rica to the highlands. On the whole, we think that the relationships of *T. modestus* and the Panama race of it to *T. zeledoni* require further investigation; and we only regret that our materials are not sufficient to enable us to attempt an explanation of them.

5. Thryophilus leucotis.

Thriothorus leucotis, Lafr. Rev. Zool. 1845, p. 338[1]; Bp. Consp. i. p. 221[2].
Thryophilus leucotis, Scl. & Salv. Nomencl. Av. Neotr. p. 6[3].
Thryothorus galbraithi, Lawr. Ann. Lyc. N. Y. vii. p. 320[4].
Thryophilus galbraithi, Baird, Rev. Am. B. i. p. 131[5].
Thryothorus albipectus, Cab. in Schomb. Guiana, iii. p. 673[6]; Scl. & Salv. P. Z. S. 1864, p. 345[7].
Thryothorus, sp. ?, Cassin, Pr. Ac. Phil. 1860, p. 193[8].

Supra rufescenti-brunneus, uropygio cinnamomeo tincto; alis anguste, cauda late nigro transfasciatis; superciliis distinctis, gula et genis sericeo-albis; subtus pallide fusco-cinnamomeus, gulam versus albicantior; rostro corneo, mandibula albicante; pedibus obscure fuscis. Long. tota 5·0, alæ 2·5, caudæ 1·9, rostri a rictu 1·0, tarsi 1·0. (Descr. maris ex Lion Hill, Panama. Mus. nostr.)

♀ mari similis.

Hab. Panama, Lion Hill (*M'Leannan*[4]), Turbo, Isthmus of Darien (*Schott*[8]).—Colombia[1]; Venezuela; Guiana[6].

This species has a very limited range in Central America, where it has not been detected beyond the limits of the State of Panama. Here it was discovered by M'Leannan and Galbraith, Mr. Lawrence describing the bird under the name of the latter naturalist[4]. A careful examination of Central-American examples with others from the northern parts of the South-American continent has convinced us[3] that no definite points of distinction can be traced between them, and that all should bear the name *T. leucotis*, bestowed upon a bird from Colombia or Mexico (the latter locality doubtless an error, but repeated by Bonaparte[2]) by the late Baron Lafresnaye[1], of which *T. albipectus* is a synonym[6]. In Western Ecuador a distinct race appears to exist, which Mr. Lawrence has called *T. superciliaris*, basing his characters upon specimens from the island of Puná in the Gulf of Guayaquil.

At first sight *T. leucotis* has a general resemblance to *T. modestus*, but may readily be distinguished by the distinct dark bars on the wings.

b. *Subtus striati aut fasciati.*

c'. *Guttur totum album nigro longitudinaliter striatum.*

6. **Thryophilus thoracicus.** (Tab. VI. figg. 1, 2.)

Thryothorus thoracicus, Salv. P. Z. S. 1864, p. 580[1], 1867, p. 134[2]; Lawr. Ann. Lyc. N. Y. ix. p 93[3].
Thryothorus brunneus, Lawr. Ann. Lyc. N. Y. viii. p. 179[4].

Supra cinnamomeo-brunneus, pileo cinerascentiore, uropygio rufescentiore; capitis collique lateribus cum gula et pectore albis, plumis singulis undique nigro marginatis; alis extus, cauda et crisso brunneis nigro transfasciatis; ventre brunneo, lateribus rufescentioribus; rostro et pedibus plumbeis. Long. tota 4·6, alæ 2·4, caudæ 1·7, rostri a rictu 0·85, tarsi 0·8. (Descr. exempl. typici ex Tucurriqui, Costa Rica. Mus. nostr.)

Hab. Nicaragua, Greytown (*Holland*[4]); Costa Rica, Tucurriqui (*Arcé*[1], *Zeledon*[3]), Santa Rosa (*Carmiol*[3]); Panama, Santiago de Veraguas (*Arcé*[2]).

At first sight this species bears a strong resemblance in coloration to *Thryothorus maculipectus*, but differs in many respects, in having barred wings and in the distinct character of the markings of the chest. At one time[1] we considered these two species to belong to the same group of Wrens; but a closer examination shows that, while *T. thoracicus* has the open nostril of *Thryophilus*, *T. maculipectus* has the nostril with overlying membrane, as in true *Thryothorus*.

Through Mr. Lawrence's kindness we have had an opportunity of examining his type of *Thryothorus brunneus*[4], and found that it is undoubtedly an immature example of the present species. We have figured this type; and the plate will, we think, show the correctness of our views respecting it. *Thryophilus thoracicus* seems to be by no means a common species, as but few specimens have come under our notice. Our own types, one of which we now figure, were obtained by Arcé near Tucurriqui in Costa Rica.

c. *Subtus corpus plus minusve nigro transfasciatum.*

7. **Thryophilus pleurostictus.**

Thryothorus pleurostictus, Scl. & Salv. Ibis, 1860, p. 30[1]; P. Z. S. 1870, p. 551[2]; Scl. Cat. Am. B. p. 21, t. 4[3]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 13[4].
Thryophilus pleurostictus, Lawr. Ann. Lyc. N. Y. ix. p. 92[5].

Umbrino-brunneus, alis extus et cauda nigro transfasciatis; superciliis distinctis et corpore subtus albis, capitis collique lateribus albis nigro variegatis, hypochondriis et crisso late nigro transvittatis; rostro plumbeo, mandibulæ basi albida; pedibus pallide corylinis. Long. tota 5·2, alæ 2·5, caudæ 2·2, rostri a rictu 0·95, tarsi 1·0. (Descr. exempl. ex Bebedero, Costa Rica. Mus. nostr.)

Hab. Mexico, San Juan del Rio (*Rébouch*[2]), Santa Efigenia, Guichicovi, Tapana (*Sumichrast*[5]); Guatemala (*Skinner*[1]); San Salvador, Conchagua (*O. S.*); Nicaragua, Corinto (*Baxter*), San Juan del Sur (*O. S.*); Costa Rica, Tempate, Bebedero (*Arcé*).

For several years this species was only known to us from the single specimen in Mr. Sclater's collection[5], which once formed part of one of the large series of bird-skins

transmitted by Mr. Skinner to Mr. Gould from Guatemala. In our description of this specimen its origin is put down as Vera Paz; but we now think that it more probably came from that part of Guatemala which borders the Pacific Ocean. We have, however, never seen a second Guatemalan example; and our surmise as to the origin of the type is derived from the fact that neither in Mexico nor in more southern countries has the species ever been found far from the Pacific, it having been frequently met with on the shores of that ocean.

In Mexico, *T. pleurostictus*, though never observed in the eastern parts of the country, nor yet in Oaxaca, was obtained near San Juan del Rio by M. Rébouch in some numbers[2]; and at Tehuantepec it would appear to be by no means uncommon[4]. Prof. Sumichrast, who describes its habits, speaks of its activity and tameness. Its nest, he says, is made of the fine stems of dry grasses, which are woven into the shape of a retort, and lined with hair and the seeds of a *Bombax*. This structure is placed in a bush, or in the fork of two branches. The eggs, three to five in number, are of a beautiful greenish-blue colour. It first came under our observation near La Union, when descending the volcano of Conchagua. A pair were then observed in the brushwood skirting the town of La Union. It was afterwards seen at San Juan del Sur in Nicaragua, in the thin scrub on the shores of the bay. Other Nicaraguan examples examined by us were in the possession of General Baxter, at one time American Minister to Central America, who obtained them near the port of Corinto. The Costa-Rican specimens in our possession were obtained by Arcé on the shores of the Gulf of Nicoya, and are those alluded to by Mr. Lawrence in his list of Costa-Rican birds[5].

8. **Thryophilus nisorius.**

Troglodytes nisorius, Licht. Mus. Berol. et Nomencl. p. 34[1] (descr. nulla).
Thryothorus nisorius, Scl. P. Z. S. 1869, p. 591, t. 45[2].

Supra læte rufus, alis caudaque nigro regulariter transfasciatis, superciliis elongatis albis, capitis lateribus albis nigro variegatis; subtus albus nigro ubique transfasciatus, tectricibus subalaribus albo nigroque variegatis; rostro et pedibus corneis. Long. tota 5·5, alæ 2·7, caudæ 2·2, tarsi 0·85. (Descr. Sclateriana exempl. ex Real Ariba, Mexico. Mus. Berol.)

Hab. Mexico, Real Ariba (*Deppe* [1 2]).

This Wren is a near ally of *T. pleurostictus*, from which it mainly differs in having the under surface barred throughout with black, instead of only on the flanks and crissum as in its near relative. This difference, though sufficiently apparent in the type, is not great; and an examination of a larger series of specimens may prove that the two species are not really separable. At present the single example obtained by Deppe, and now in the Berlin Museum, is the only one we have met with. This stood for many years under an unpublished name of Lichtenstein's, until Mr. Sclater described and figured it in 1869.

9. **Thryophilus semibadius.** (Tab. VI. fig. 3.)

Thryothorus semibadius, Salv. P. Z. S. 1870, p. 181 [1].

Supra intense castaneus, fronte et capitis lateribus albis, plumis singulis nigro marginatis; alis et cauda nigris, extus badio transfasciatis, tectricibus alarum minoribus albo transvittatis; subtus albus, a pectore usque ad caudam nigro transfasciatus, gula pure alba, hypochondriis postice castaneo lavatis; rostro corneo, mandibula pallidiore; pedibus nigricantibus. Long. tota 5·3, alæ 2·6, caudæ 2·0, rostri a rictu 0·9, tarsi 0·9. (Descr. maris ex Bugaba, in Statu Panamensi. Mus. nostr.)

Hab. Panama, Bugaba, Bibalá (*Arcé* [1]).

This Wren is only known to us from specimens sent to us from the neighbourhood of Chiriqui by our collector Arcé. The species is a very distinct one, allied to *T. castaneus* and *T. nigricapillus* on the one hand, and *T. pleurostictus* on the other—differing from the former in having the top of the head of the same rich chestnut as the back, and from the latter in the colour of the back and in the numerous cross bands of the under surface.

B. *Caput nigrum, dorsum castaneum.*

10. **Thryophilus castaneus.**

Thryothorus castaneus, Lawr. Ann. Lyc. N. Y. vii. p. 321 [1]; Scl. & Salv. P. Z. S. 1864, p. 346 [2]; Salv. P. Z. S. 1867, p. 134 [3].

Thryophilus castaneus, Baird, Rev. Am. B. i. p. 133 [4]; Lawr. Ann. Lyc. N. Y. ix. p. 93 [5].

Thryothorus nigricapillus ?, Lawr. Ann. Lyc. N. Y. vii. p. 293 [6] (nec Sclater).

Supra læte castaneus, pileo toto cum capitis lateribus nigerrimis, regione parotica sericeo-alba; alis et cauda nigris castaneo frequenter transfasciatis; subtus gula et pectore antico albis, stria mystacali nigra, abdomine toto castaneo, hypochrondriis et crisso nigro transfasciatis; rostro nigricanti-corneo, mandibula pallidiore; pedibus fuscis. Long. tota 5·4, alæ 2·8, caudæ 2·3, rostri a rictu 1·1, tarsi 1·1. (Descr. maris ex Lion Hill, Panama. Mus. nostr.)

Obs. In speciminibus ex Costa Rica fasciæ abdominis nigræ carent, gula quoque nec pectus alba est. Forsan species alia.

Hab. Costa Rica, Pacuar, Angostura (*F. Carmiol* [5]), Tucurriqui (*Arcé*); Panama, Santiago de Veraguas (*Arcé* [3]), Lion Hill (*M'Leannan* [1 2 4 6]).

This is a beautiful species allied to *T. nigricapillus*, but differing from it in having the underparts deep chestnut instead of barred with black and white. Mr. Lawrence, on first receiving specimens from M'Leannan, thought they might belong to *T. nigricapillus* [6]; but he soon afterwards described the bird under its present name [1]. All the Panama birds we have seen have the underparts more or less barred with obsolete black transverse bands. Costa-Rica specimens, on the other hand, so far as we know, have the belly of a rich unbarred chestnut colour, and the white of the throat much more restricted in extent. We thus have indications of the existence of two races of this bird in Central America—the Panama bird, if our specimens indicate the normal coloration, being somewhat intermediate in colour as well as in locality between the one found in Costa Rica and that of Western Colombia and Ecuador which bears the name *T. nigricapillus*.

11. Thryophilus nigricapillus.

Thryothorus nigricapillus, Scl. P. Z. S. 1860, p. 84 [1]; Cassin, Pr. Ac. Phil. 1860, p. 193 [2].
Thryophilus nigricapillus, Scl. & Salv. P. Z. S. 1879, p. 493 [3].
Thryophilus schottii, Baird, Rev. Am. B. i. p. 133 [4].

T. castaneo similis, sed corpore subtus albo nigro transfasciato, superciliis albis et capitis lateribus albis nigro variegatis differt. Long. tota 6·0, alæ 2·8, caudæ 2·2, rostri a rictu 1·1, tarsi 1·1. (Descr. maris ex Remedios, Colombia. Mus. nostr.)

Hab. Truando, Isthmus of Darien (*Schott* [2 4]).—Colombia [3]; Ecuador [1].

Thryothorus nigricapillus just enters our region, specimens having been obtained by Dr. A. Schott during Lieut. Michler's exploration of the Isthmus of Darien [2]. These specimens were considered to belong to *T. nigricapillus* by Cassin, but were afterwards described by Prof. Baird as *T. schottii*, on account of the throat being barred with black instead of being pure white, as is usual in the Ecuadorian bird. But the acquisition of a better series of specimens of this species shows that this character is variable and therefore not of much value; we have accordingly reunited the Darien bird to *T. nigricapillus*. Fraser, the discoverer of the species at Nanegal in Ecuador [1], says that the irides are red, the bill black above, blue below, the legs and feet lead-colour, and that the gizzard of his specimens contained insects. Salmon, who obtained it at Remedios and Santa Elena, in the Colombian State of Antioquia, describes the nest as made of soft dry grass and placed in a low bush [3].

THRYOTHORUS.

Thriothorus, Vieillot, Analyse, p. 45 (1816). (Type *Troglodytes arundinaceus*, Vieill., = *Sylvia ludoviciana*, Lath.) Cf. Baird, Rev. Am. B. i. p. 120.

The nostril in birds of this genus is covered by a thickened overhanging membrane, leaving the nasal opening an elongated slit, lying along the anterior portion of the lower edge of the nasal fossa. This nostril is very different in shape from that of *Thryophilus*, in which genus it is an oval and open, without any covering. The tail is long, wide, and rounded, differing in these respects from that of *Microcerculus*.

The species comprised in *Thryothorus* are rather various in form. One group, having very strong arched bills, has been treated by Prof. Baird as a separate genus, *Pheugopedius*; whilst the birds with slender bills, the opposite of *Pheugopedius*, have been placed in another genus, *Thryomanes*. These distinctions are completely broken down by such birds as *T. hyperythrus* and *T. maculipectus*, linking *Pheugopedius* to *Thryothorus*; and as the rest of the members of *Thryothorus* show more diversity between one another than exists between some of them and *T. bairdi*, we have thought it best to retain all under one genus, *Thryothorus*, distinguished by its well-developed tail and by the form of the nostrils. In splitting up the genus into minor sections

we have employed slight characters which serve to group the species into what appear to be natural groups.

About eighteen species are now known of the genus; of these, nine are found within our borders. Four out of eleven belong to the *Pheugopedius* section, three of which are peculiar to Central America and Mexico, viz. *T. maculipectus* to Mexico and Guatemala, *T. atrogularis* to Costa Rica, and *T. hyperythrus* to the State of Panama—the fourth, *T. fasciativentris*, ranging from Costa Rica to Colombia. Of the more typical *Thryothori*, *T. felix* is peculiar to Mexico and *T. lawrencii* to the Tres-Marias Islands; *T. berlandieri* just enters our north-eastern border, and *T. albinucha* is peculiar to Yucatan. Of the small-billed section *Thryomanes*, *T. bairdi* is found throughout Mexico, and ranges beyond our northern border into the adjoining frontier territories. No true *Thryothorus* is found in the South-American continent; but three species are peculiar to the Lesser Antilles.

A. Pheugopedius.

Uropygium immaculatum.

a. *Rostrum valde robustum, gula immaculata.*

1. Thryothorus fasciativentris.

Thryothorus fasciato-ventris, Lafr. Rev. Zool. 1845, p. 337[1]; Scl. & Salv. P. Z. S. 1864, p. 346[2], 1879, p. 493[3]; Lawr. Ann. Lyc. N. Y. ix. p. 92[4]; Salv. P. Z. S. 1870, p. 180[5].

Cyphorhinus fasciato-ventris, Lawr. Ann. Lyc. N. Y. vii. p. 320[6].

Pheugopedius fasciato-ventris, Baird, Rev. Am. B. i. p. 134[7].

Cyphorhinus albigularis, Scl. P. Z. S. 1855, p. 76, pl. 88[8].

Supra rufescenti-brunneus, alis extus obsolete nigro transfasciatis; cauda nigra brunneo transvittata; capitis lateribus nigris, superciliis posticis et gutture toto pure albis, pectore late nigro, abdomine crissoque nigris albo transfasciatis; rostro nigricanti-plumbeo, tomiis pallidis; pedibus obscure nigricantibus. Long. tota 5·6, alæ 2·7, caudæ 2·4, rostri a rictu 1·0, tarsi 1·1. (Descr. maris ex Lion Hill, Panama. Mus. nostr.)

Juv. subtus rufescentior, gula cinereo-albicante et abdominis fasciolis albis nullis, rostri mandibula flava. (Descr. exempl. ex Chiriqui. Mus. nostr.)

Hab. Costa Rica, San Mateo (*J. Cooper*[4]); Panama, (*Delattre*[8]), Bugaba[5], Bibalá (*Arcé*), Lion Hill (*M'Leannan*[2 6 7]).—Colombia[1 3 7].

Though skins of this Wren are occasionally sent in collections from Bogotá, it is in the valleys stretching northwards from that city that the bird is found, no trace of it having as yet been met with in the upper waters of the affluents of the Orinoco and Amazon. In the Cauca valley Salmon found it at Remedios and Neche[8], whence it spreads northwards through the State of Panama to Costa Rica. A specimen from Colombia furnished Lafresnaye with the description of his *T. fasciatoventris*[1], the name *Cyphorhinus albigularis* having been given by Mr. Sclater to a Panama bird

obtained by the French traveller Delattre. Both these names are now admitted to apply to the same species. We have examined many specimens from the State of Panama, and find them to vary slightly in the width of the black pectoral band and in the number of the white cross bars of the underparts. In none, however, is the former so narrow or the latter so wide as in Mr. Wolf's representation of *T. albigularis*[8].

Nothing has been recorded of the habits of the species, which appears to be strictly confined to the low-lying hotter districts of the countries in which it occurs. Remedios, the elevation of which is a little over 2300 feet, is probably at the limit of its range in altitude; thence it descends to the level of the sea.

2. **Thryothorus atrigularis.** (Tab. VI. fig. 4.)

Thryothorus atrogularis, Salv. P. Z. S. 1864, p. 580[1]; Lawr. Ann. Lyc. N. Y. ix. p. 92[2].
Pheugopedius atrogularis?, Lawr. Ann. Lyc. N. Y. viii. p. 179[3].

Castaneus, pectore, gula et capitis lateribus nigris, his cum superciliis obscure albo maculatis; alis et cauda fuscis, illis extus castaneis, hac aliquando septem fasciis pallidis transvittata; tectricibus subcaudalibus et campterio alari nigris albido transfasciatis; rostro et pedibus nigris. Long. tota 5·3, alæ 2·9, caudæ 2·4, rostri a rictu 0·85, tarsi 1·0. (Descr. exempl. ex Tucurriqui, Costa Rica. Mus. nostr.)

Hab. Nicaragua, Greytown (*Holland*[3])? Costa Rica, Tucurriqui (*Arcé*[1 2]).

Three specimens of this Wren were included in a large collection of bird-skins formed by Enrique Arcé at Tucurriqui and elsewhere in Costa Rica. These are all the examples that have come under our notice; for Mr. Lawrence, in including the species in his list of Costa-Rica birds, refers to Arcé's specimens, none having at that time reached the Smithsonian Institution, upon whose collections the list was founded. The species is included with doubt in Mr. Lawrence's list of the collection of birds made near Greytown by Mr. H. E. Holland[3].

T. atrigularis has no near allies that we are acquainted with, being a remarkably distinct species, having an appearance recalling certain Formicariidæ. Of its habits nothing has been as yet recorded.

b. *Rostrum mediocre, gula nigro maculata.*

3. **Thryothorus hyperythrus,** sp. n.

Thryothorus rutilus, Lawr. Ann. Lyc. N. Y. vii. p. 320[1]; Salv. P. Z. S. 1867, p. 134[2], 1870, p. 181[3] (nec Vieillot).

Supra murino-fuscus, capite paulo rufescentiore, alis dorso concoloribus, cauda nigro regulariter transfasciata; capitis lateribus et gula nigris albo distincte variegatis; subtus ferrugineus, pectore paulo rufescentiore, crisso albicante nigro transfasciato; rostro et pedibus plumbeis. Long. tota 5·5, alæ 2·3, caudæ 2·0, rostri a rictu 0·85, tarsi 0·9. (Descr. exempl. ex Paraiso, Panama. Mus. nostr.)

Obs. T. rutilo affinis, sed abdomine medio ferrugineo nec albo distinguendus.

Hab. Panama, Bugaba, Boqueti, Chitra, Calovevora, Santa Fé, and Santiago (*Arcé*[2 3]), line of railway (*M'Leannan*[1]), Paraiso station (*Hughes*).

This Wren is a near ally of *Thryothorus rutilus*, Vieillot, under which name it has

hitherto stood. An examination of a number of specimens of both forms shows that the under plumage of the present bird is of a nearly uniform rusty red, instead of having the middle of the belly white, as is universally the case in Venezuelan examples of the older form. In Colombia a third race is found; a single skin of Bogota make having a very restricted red patch on the throat, and the rest of the under plumage, including the flanks, russet-grey. This bird we propose to call *Thryothorus hypospodius**. Thus restricted, *T. hyperythrus* appears to be confined in its range to the Colombian State of Panama, whence we have received many specimens.

4. Thryothorus maculipectus.

Thryothorus maculipectus, Lafr. Rev. Zool. 1845, p. 338[1]; Scl. P. Z. S. 1856, p. 290[2], 1859, pp. 363[3], 372[4]; Scl. & Salv. Ibis, 1860, p. 30[5]; P. Z. S. 1870, p. 836[6]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 13[7].

Pheugopedius maculipectus, Baird, Rev. Am. B. i. p. 135[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545[9].

Supra rufo-brunneus, pileo paulo rufescentiore alis dorso concoloribus, cauda nigro regulariter transfasciata; superciliis albis, capitis lateribus nigro et albo striolatis; gutture toto et pectore albis nigro frequenter maculatis, ventre imo et hypochondriis rufescente brunneis, crisso indistincte nigro transfasciato; rostro et pedibus plumbeis. Long. tota 5·0, alæ 2·3, caudæ 2·0, rostri a rictu 0·8, tarsi 0·8. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico[1], Cordova (*Sallé*[2]), Orizaba (*Sumichrast*[9], *le Strange*), Jalapa (*de Oca*[3]), Teotalcingo (*Boucard*[4]), Guichicovi (*Sumichrast*[7]); Guatemala, Vera Paz (*Skinner*[5]), Choctum, Cahabon[8] to San Luis, Savana Grande (*O. S. & F. D. G.*); British Honduras, Corozal (*Roe*); Honduras, San Pedro (*G. M. Whitely*[6]).

Originally described from Mexican specimens[1], *T. maculipectus* has since been met with by most of the collectors who have worked in the southern parts of that country. Prof. Sumichrast[9] says it belongs to the hot and temperate regions, not extending its range above the elevation of about 4000 feet, or the altitude of Orizaba, where it becomes a somewhat rare species. In Guatemala it is also an inhabitant of the low-lying forest-lands, being common at Choctum and throughout the forests of Northern Vera Paz. We also found it in smaller numbers on the slopes of the Volcan de Fuego at an elevation of about 3000 feet and less. The bird also occurs on the Atlantic side of Honduras[6]; but it has not yet been traced in any of the other Central-American States, nor yet in Panama.

In Colombia a closely allied race is found differing from the Central-American species in having grey instead of russet flanks. In this respect it approaches the Peruvian

* Thryothorus hypospodius, sp. n. *T. rutilo* affinis, sed abdomine toto cum hypochondriis griseo-fuscis, pectore solo plaga magna rufa notato et corpore supra rufescentiore differt. Long. alæ 2·4, caudæ 2·0, rostri a rictu 0·9, tarsi 0·9.

Hab. Colombia (mus. nostr.).

bird recently described by Taczanowski as *T. sclateri*, and is probably inseparable from that species.

Guatemalan specimens exhibit considerable diversity in the number of the black spots of the under plumage, some having the throat pure white, which in others is spotted like the breast. The example from Northern Yucatan shows the greatest divergence, being of a much greyer cast of plumage above, especially on the tail.

B. Thryothorus.

Uropygium maculis celatis albis notatum.

c. *Rostrum mediocre.*

5. **Thryothorus felix.** (Tab. VII. fig. 1.)

Thryothorus felix, Scl. P. Z. S. 1859, p. 371 [1]; Lawr. Mem. Bost. Soc. N. H. ii. p. 268 [2] (partim).
Pheugopedius felix, Baird, Rev. Am. B. i. p. 136 [3].

Supra murino-fuscus, pileo antico rufo; loris et capitis lateribus albo nigroque striatis; alis dorso concoloribus, cauda nigricanti regulariter transfasciata; subtus cinnamomeo-rufescens, ventre medio albicante, gutture albo, crisso albo nigro transfasciato; rostri maxilla nigricante, mandibula et pedibus plumbeis. Long. tota 5·5, alæ 2·4, caudæ 2·6, rostri a rictu 0·9, tarsi 0·95. (Descr. exempl. ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mexico, Mazatlan (*Grayson* [2]), Juquila (*Boucard* [1]).

M. Boucard discovered this Wren in May 1859 in the Mexican State of Oaxaca [1]; and it has since been traced as far north as Mazatlan [2], one of M. Boucard's specimens having been compared with another from the latter place, and pronounced by Prof. Baird to agree in all essential respects [3].

Nothing is recorded of the habits of this Wren; but it may be assumed to resemble in this respect the following species, as Grayson's note on *T. lawrencii* was made under the supposition that the birds of the Tres Marias Islands and Mazatlan were identical, which is now proved to be not absolutely the case. We have figured one of Boucard's Oaxaca specimens, the same as the one which furnished Prof. Baird with his description of the species in the 'Review of American Birds' [3].

6. **Thryothorus lawrencii.**

Thryothorus felix β. *lawrencii*, Ridgw. Bull. Nutt. Orn. Club, 1878, p. 10 [1]; Salv. Ibis, 1878, p. 196 [2].
Thryothorus felix, Grayson, Pr. Bost. Soc. N. H. xiv. p. 278 [3] (nec Sclater).

T. felici affinis, sed corpore subtus fere albo, hypochondriis vix rufescenti tinctis differt; superciliis distinctis albis, genis immaculatis albis, et rostro graciliore magis incurvo quoque diversus. Long. tota 5·3, alæ 2·3, caudæ 2·2, rostri a rictu 0·95, tarsi 0·9. (Descr. exempl. typ. ex inss. Tres Marias, Mexico. U.S. Nat. Mus. no. 50818.)

Hab. Mexico, Tres Marias Islands (*Grayson* [1 3]).

Grayson [3] describes this Wren as a little larger than the one of the mainland, but with similar notes. He adds that it is very common in the Marias, where it is a

constant resident, and the only species of Wren found there, where its lively song chimes in with those of the other songsters of the woods at all hours of the day.

We are indebted to Mr. Ridgway for his kindness in lending us the type specimen of this bird, which, compared with one of M. Boucard's typical examples of *T. felix*, presents the differences pointed out above. The island habitat of *T. lawrencii* renders it extremely improbable that these distinctions will be broken down by intermediate links; and we are therefore of opinion that *T. lawrencii* should be kept apart.

7. **Thryothorus berlandieri.**

Thryothorus berlandieri, Baird, B. N. Am. p. 362, t. 83. f. 1 [1] (ex Couch, MS.); Rev. Am. B. i. p 124 [2].

Thryothorus ludovicianus, var. *berlandieri*, Baird, Brew. & Ridgw. N. Am. B. i. p. 144 [3]; Merrill, Pr. U.S. Nat. Mus. i. p. 121 [4].

Thryothorus ludovicianus berlandieri, Sennett, Bull. U.S. Geol. Surv. iv. p. 8 [5].

Supra rufescenti-brunneus, alis et cauda vix nigro transfasciatis, uropygio maculis celatis albis ornato; superciliis albis, supra nigro marginatis; cervicis lateralibus nigro maculatis; subtus rufescens, gula et abdomine medio albicantioribus; hypochondriis obsolete fusco transfasciatis; rostro et pedibus corylinis. Long. tota 5·7, alæ 2·4, caudæ 2·1, rostri a rictu 0·9, tarsi 0·9. (Descr. exempl. ex Mexico. Mus. P. L. Sclater.)

Hab. North America, Rio Grande valley (*Sennett* [5], *Merrill* [4]).—Mexico, Boquillo, Nuevo Leon and San Diego (*Couch* [1 2]).

The original specimens of this race of the Carolina Wren (*T. ludovicianus*) were obtained by Lieut. Couch at Neuvo Leon and San Diego, in Mexico; and it has since been found in abundance in the valley of the lower Rio Grande. Its distinctness from *T. ludovicianus* is not very pronounced; and Dr. Coues, in examining Mr. Sennett's specimens [5], speaks of them as being rather puzzling, owing to their being intermediate between *T. ludovicianus* proper and the full development of *T. berlandieri*. He decided, however, to associate them with the latter bird, which, according to Messrs. Baird, Brewer, and Ridgway [3], bears to the former about the same relationship that *Harporhynchus longirostris* does to *H. rufus*.

Mr. Sennett procured several nests of this Wren during his stay on the lower Rio Grande. These were found near the ground, in hollow trees, stumps, and even in dead limbs lying on the ground. The eggs are described as being of a white or pinkish colour, with brown and purple specks and blotches distributed over the whole surface.

We have no record of the occurrence of the species in Central or Southern Mexico.

8. **Thryothorus albinucha.** (Tab. VII. fig. 2.)

Troglodytes albinucha, Cabot, Pr. Bost. Soc. N. H. ii. p. 258 [1].

Thryothorus albinucha, Baird, Rev. Am. B. i. p. 149[2]; Salv. Ibis, 1866, p. 191[3]; Lawr. Ann. Lyc. N. Y. ix. p. 199[4].

Thryothorus petenicus, Salv. P. Z. S. 1863, p. 187[5]; Baird, Rev. Am. B. i. p. 125[6].

Supra brunneus, uropygio paulo rufescentiore et maculis celatis albis notato; alis vix nigro transfasciatis, loris et superciliis albis, regione postoculari brunnea; capitis et colli lateribus albis nigro vix vittatis; cauda nigra, rectricibus duabus extimis albo irregulariter punctatis, duabus mediis fusco-brunneis, his et reliquis nigro fasciatis; subtus albus, hypochondriis brunneo lavatis, crisso nigro distincte transfasciato; rostri maxilla cornea, mandibulæ basi albicante; pedibus pallide corylinis. Long. tota 5·1, alæ 2·3, caudæ 2·0, rostri a rictu 0·9, tarsi 0·85. (Descr. exempl. ex Sakluk, Peten. Mus. nostr.)

Hab. Mexico, Yalahao[1] and Merida[4], Yucatan (*Cabot*[1], *Schott*[4]); Guatemala, Sakluk, near Peten (*O. S.*[5 6]).

This species is one of very restricted range, being confined to the promontory of Yucatan and the adjoining district of Peten. Dr. S. Cabot first discovered it during his travels in Northern Yucatan, where it has since been obtained near Merida by Dr. Schott. When at Sakluk near Peten, April 1862, Salvin shot a single specimen of this Wren on the outskirts of a thicket in the open savannas in which the village is situated. This bird was afterwards described as *T. petenicus*, but found to be inseparable from Dr. Cabot's bird when compared with it by Prof. Baird[2].

We have figured the type of *T. petenicus*.

d. *Rostrum debile.*

9. Thryothorus bairdi.

Thryothorus bewicki, var. *leucogaster*, Baird, Rev. Am. B. i. p. 127[1] (nec *T. leucogaster*, Gould); Baird, Brew. & Ridgw. N. Am. B. i. p. 147[2]; Lawr. Mem. Bost. Soc. N. H. ii. p. 268[3]; Bull. U.S. Nat. Mus. no. 4, p. 14[4].

Thryomanes bewicki leucogaster, Coues, B. Col. Vall. i. p. 169[5].

Thryomanes bewicki, var. *leucogaster*, Merrill, Pr. U.S. Nat. Mus. i. p. 121[6].

Thryothorus bewicki, Scl. P. Z. S. 1859, p. 372[7]; Dugès, La Nat. i. p. 139[8]; Sennett, Bull. U.S. Geol. Surv. iv. p. 9[9].

Murino-brunneus, cauda nigro indistincte irrorata, rectricibus externis extus albo variegatis; loris et superciliis distinctis albis, stria postoculari murina; capitis lateribus et corpore subtus sordide albis, crisso indistincte fusco transvittato; rostro et pedibus fuscis, mandibulæ basi pallidiore. Long. tota 4·7, alæ 2·1, caudæ 2·0, rostri a rictu 0·75, tarsi 0·6. (Descr. exempl. ex Oaxaca, Mexico. Mus. nostr.)

Hab. North America, Colorado[5] and Rio-Grande valleys[6 9].—Mexico, Tamaulipas and Nuevo Leon (*Couch*[1]), Guadalaxara (*Grayson*[3]), Guanajuato (*Dugès*[8]), valley of Mexico (*le Strange*), Oaxaca (*Boucard*[7]), Puente Colorado (*Sumichrast*[4]).

This Wren is a race of *T. bewicki*, found in Mexico and the border lands of the Rio-Grande and Colorado valleys, having two near allies in the northern continent—one, *T. bewicki*, belonging to the south-eastern States and as far west as Texas, and the

other, *T. spilurus*, in California. The differences between these three forms were first set forth by Prof. Baird in his 'Review of American Birds'[1]; and his views have been confirmed by subsequent writers[2 5]. These forms are stated to be strongly marked geographical varieties separable by quite constant characters[2], necessitating, in our opinion, the use of a specific name for each, the fact of this constancy of character rather than the amount of the difference between them requiring this recognition.

In differentiating these races, Prof. Baird thought that he recognized in the Mexican bird the *Troglodytes leucogastra* of Gould, and hence properly called it *Thryothorus bewicki*, var. *leucogaster*. But Mr. Gould's name has since been found to apply to a very different species, which now stands as *Uropsila leucogastra**. This being the case, it is obviously undesirable to retain the name *leucogaster* for the present bird as well as for the *Uropsila*; we therefore suggest that the former should stand as *Thryothorus bairdi*.

Of *T. bairdi* in Mexico little is recorded beyond its occurrence at several places as far south as the State of Oaxaca[7] and the Isthmus of Tehuantepec[9]; but good accounts of it are given by Mr. Sennett[9] and Dr. Merrill[6], who observed it on the Rio Grande, and also by Mr. Ridgway[2] and Dr. Coues[5]. All these observers bear testimony to the excellence of its song and the great variety of its notes. Dr. Merrill describes its nest as placed in various situations, such as an old Woodpecker's hole, between joints of a prickly pear, or amongst twigs of dense thorny bushes. The eggs are described as varying considerably, some having very fine inconspicuous markings, others heavy marks of reddish and lilac. Our thanks are due to Mr. Ridgway for lending us for comparison a specimen of the true *T. bewicki* from Brazos in Texas. This, with the good series of *T. spilurus* in the Museum of the University of Cambridge, formerly in Hepburn's collection, and specimens of the Mexican bird in our own and Mr. Sclater's possession, have enabled us to compare the three races of this Wren together, and to confirm, as far as our materials go, the observations of American writers.

TROGLODYTES.

Troglodytes, Vieillot, Ois. Am. Sept. ii. p. 52 (1807). (Type *T. aedon*, Vieill.)

No well-marked characters distinguish *Troglodytes* from *Thryothorus*, though the small size, more slender straighter bill, and shorter tail of the more typical members of *Troglodytes* render them not difficult of recognition when compared with any of the sections of *Thryothorus*, into which the species of that genus have been grouped. Still such birds as the West-Indian *Thryothorus martinicanus* and its allies are so intermediate in their characters that the passage from one to the other genus is almost complete.

The classification of the races of *Troglodytes* allied to *T. aedon*, owing to the great amount of variability observable amongst them, offers one of those difficult questions

* *Anteà*, p. 78.

for solution which are not unfrequently met with in ornithology, and in dealing with which no method of nomenclature has yet proved altogether satisfactory. Before treating the Central-American races separately, it will be convenient here to view the relationship of all the forms collectively.

Throughout the two continents of America and some of the adjacent islands (the Antilles alone excepted), Wrens of the *Troglodytes aedon* group are found. These seem at once to be tolerably sharply divisible into two species:—*T. aedon* of North America, which also occurs in Mexico; and a southern form, subject to great local variation, which spreads from Mexico over the whole South-American continent to Cape Horn. Of *T. aedon* three races have been set up, none of which do we think can be maintained, for reasons stated below. Of the southern form, *T. insularis* of the island of Socorro seems fairly separable; and on the mainland the following names have been proposed:—*T. intermedius* for the Central-American bird, which ranges from Southern Mexico to Costa Rica; *T. inquietus* for the Panama bird; *T. striatulus* for the Bogota bird; *T. tessellatus* for that of Western Peru. The Guiana bird is *T. furvus*, the Brazilian *T. æquinoctialis* *; the bird of the extreme south is *T. magellanicus* †, and the Chilian *T. hornensis* ‡. It is with all these local forms that our great difficulty lies. Characters which in some places seem definite, gradually disappear on the confines of the range of what at first sight is an apparently distinct form; so that it would seem that no diagnostic features exist by which to separate all these various races.

The Central-American *T. intermedius* perhaps comes nearest the South-Brazilian bird, differing in being rather more deeply coloured below, in having the crissum (in the adult bird) more strongly banded, and in the tail being shorter. The Panama Wren passes southwards through Colombia to Peru, no tangible difference being evident between *T. inquietus* and *T. tessellatus*. The typical bird of this race is distinguished by the pale colour of its under surface, the flanks alone being tinged with rufous, and by its having the feathers of the back more or less strongly barred across with fine blackish bands. These characters are also present in the Guiana *T. furvus*, though the upper plumage is a shade more rufous and the markings of the back less distinct. Examples from the island of Tobago and others from the vicinity of Bogota in Colombia are not separable; but in Trinidad and Venezuela specimens seem to be of a deeper rufous above, and the dorsal marks are obsolete. This latter form passes to Santa Marta, to the Amazons, Ecuador, and to the vicinity of Lima in Peru. Thus no definite boundaries, in accordance with the generally recognized rules of the distribution of South-American birds, can be set to these variable birds; and, failing them, the only course open to us is to call them all *Troglodytes furvus* as a comprehensive name, including the true *T. furvus* of Guiana, and the aberrant *T. tessellatus* of Western America, from Panama to Peru. The bird of South-eastern Brazil has a

* Sw. Orn. Draw. t. 13.

† Gould, P. Z. S. 1836, p. 88.

‡ Less. Journ. l'Inst. 1834, p. 316, et Navig. aut. d. Globe de 'La Thétis,' ii. p. 327.

strong rufous tint beneath; this is more particularly evident in Bahia examples, where the throat alone is whitish; the crissum, too, of these birds is spotless. In Rio examples the crissum has a few black marks; and this form extends southwards to the Argentine Republic and Patagonia. Nor does the Chilian bird differ appreciably in coloration; but the tail seems to be always longer than in birds from the eastern side of the continent. This character also fails to be of much service, as the length of the tail is found to be gradually less as one proceeds northwards from Patagonia and Chili. Of these southern birds, those from Bahia are most readily distinguishable at first sight by their brighter rufous under surface and spotless crissum; but the points of distinction between Rio birds and others already referred to from Venezuela &c. are so insignificant as to be hardly capable of recognition with certainty. But the Venezuela bird passes into *T. furvus* of Guiana, and thence into *T. tessellatus*; so that the passage between the extreme forms, the birds of Bahia and Peru, seems almost complete. The geographical inter-relationship of the extremes and means is so complicated that a reasonable explanation as to how the present state of things has come about has not suggested itself to us. Still we see, in the apparent *rapprochement* of the Central-American and Brazilian birds, an example of a law of distribution of which we now have many examples.

In treating of the forms of *Troglodytes* within our boundaries our difficulties as regards their discrimination are much less. *T. aedon* and *T. insularis* are easily defined; and the relationship of *T. intermedius* to the Panama race of *T. furvus*, as we are now constrained to call the bird of the southern continent, is not too close to prevent their recognition.

Altogether six species or races of *Troglodytes* are found within our borders,—one, *T. aedon*, being the intrusion of a northern bird into Mexico; another, *T. furvus*, the extension of a southern form into the State of Panama; a third, *T. solstitialis*, is a bird of the Andes found in Costa Rica; two others are local modifications of the southern *T. furvus*; and *T. brunneicollis* a species without near allies.

1. Troglodytes aedon.

Troglodytes ædon, Vieill. Ois. Am. Sept. ii. p. 52, t. 107[1]; Baird, Rev. Am. B. i. p. 138[2].

Troglodytes parkmanii, Aud. Orn. Biogr. v. p. 310[3]; Baird, Rev. Am. B. i. p. 140[4].

Troglodytes ædon, var. *parkmanni*, Baird, Brew. & Ridgw. N. Am. B. i. p. 153[5]; Coues, Birds N.W. p. 32[6].

Troglodytes domesticus parkmani, Coues, B. Col. Vall. i. p. 171[7] (ex Bartram).

Troglodytes americanus, Aud. Orn. Biogr. ii. p. 452[8].

Troglodytes ædon, var. *aztecus*, Baird, Rev. Am. B. i. p. 139[9].

Troglodytes aztecus, Sumichrast, Mem. Bost. Soc. N. H. i. p. 545[10].

Supra murino-brunneus, uropygio paulo rufescentiore; dorso, alis et cauda nigro transversim fasciatis; subtus griseo-albidus fusco vix irroratus, hypochondriis et crisso leviter fusco transfasciatis, rostri maxilla

brunnea, mandibula et pedibus corylinis. Long. tota 4·4, alæ 2·1, caudæ 1·9, rostri a rictu 0·65, tarsi 0·7. (Descr. exempl. ex Jalapa, Mexico. U.S. Nat. Mus. no. 26368.)

Hab. North America, whole of the United States and part of Canada[5 6].—Mexico, Charco escondido, Tamaulipas (*Couch*[9]), Orizaba (*Sumichrast*[9]), Mirador (*Sartorius*[9]), Jalapa (*de Oca*[9]).

The differences said to subsist between the races of *T. aedon* found in the Eastern States, the Western States, and Mexico, called respectively *T. aedon*, *T. parkmani*, and *T. aztecus*, are of so slight a nature that we do not see how the sort of quasi recognition that has been accorded to them can be long maintained. These differences are concisely stated by Prof. Baird to be as follows:—

T. aedon. First primary nearly half the longest; colour above dark brown, rufous towards the tail.
T. aztecus. Wing similar; above paler brown.
T. parkmani. First primary half the second; above paler brown.

Of these characters the colour of the plumage above is very variable in intensity, and we do not believe it possible to distinguish specimens with any thing approaching certainty by this test.

As regards the length of the first primary, there does not seem to be any appreciable difference between any of these races; but the difference of its proportion to the rest of the wing is due to western specimens generally having a rather more lengthened wing than eastern ones[7]. But a Florida example does not differ in this respect from western birds, though Prof. Baird states the contrary was the case in the specimens he examined; so that here again is no certain test by which to discriminate these races.

Troglodytes aedon, as we prefer to call all these slight varieties, is a very well-known bird in the United States; and its habits and economy are fully set forth in recent works on North-American ornithology. Its range in Mexico seems strictly confined to the eastern side of the country, where it extends to the environs of Orizaba and Jalapa. Further south, in Yucatan and Guatemala, its place is occupied by its close ally *T. intermedius*, of which we give an account below.

As will be seen above, the name this little bird should bear has been much disputed. That of *Troglodytes aedon* will satisfy perhaps all ornithologists, except those who, with Dr. Coues, urge the acceptance of the names introduced by Bartram[7].

2. Troglodytes insularis.

Troglodytes insularis, Lawr. Ann. Lyc. N. Y. x. p. 3 (ex Baird, MS.)[1], et Mem. Bost. Soc. N. H. ii. p. 268[2]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 299[3].

Supra griseo-murinus, dorso leviter fusco irrorato; alis et cauda fusco-nigro transfasciatis; subtus albidus, crisso vix fusco notato; superciliis elongatis distinctis; rostro et pedibus corylinis, mandibulæ basi

albicante. Long. tota 4·4, alæ 1·9, caudæ 1·7, rostri a rictu 0·8, tarsi 0·8. (Descr. maris ex ins. Socorro. U.S. Nat. Mus. no. 58259.)

Hab. Mexico, Socorro Island (*Grayson* [1 2 3]).

In the tint of the upper plumage this Wren resembles *T. aedon*; but the back is rather greyer in colour. Beneath it is nearly white, without dusky markings. *T. intermedius* is altogether a browner bird both above and below; and from it, and also from *T. aedon*, *T. insularis* differs in its long slender curved bill and in the greater distinctness of the superciliary line.

Grayson, the only naturalist who has seen it, describes the Socorro Wren as the commonest bird on the island, where its song is to be heard throughout the day, either amongst the trees or brush-covered rocks that crop out everywhere. Like all the indigenous birds of the island, it was very tame, and would climb about old logs or creep over the trunks of standing trees, and even turn over leaves at his feet in search of food, every now and then stopping to utter from a twig a cheerful song of considerable volume for so small a bird [2]. He adds that he often saw it feeding on dead land-crabs, crustacea being eaten more or less by all the birds of the island except the Parrots and Pigeons [3].

Grayson describes [1] the iris of the living bird as brown, the bill brown above, the mandible paler, the feet brown with black nails.

3. **Troglodytes intermedius.**

Troglodytes intermedius, Cab. J. f. Orn. 1860, p. 407 [1]; Baird, Rev. Am. B. i. p. 142 [2]; Lawr. Ann. Lyc. N. Y. ix. pp. 93 [3], 199 [4].

Troglodytes aedon, Scl. & Salv. Ibis, 1859, p. 9 [5]; Salv. Ibis, 1866, p. 202 [6] (nec Vieillot).

Troglodytes hypaedon, Scl. P. Z. S. 1861, p. 128 [7], 1862, p. 18 [8].

Troglodytes, sp. ?, Scl. P. Z. S. 1859, p. 372 [9].

Troglodytes inquietus, Lawr. Ann. Lyc. N. Y. ix. p. 93 [10] (nec Baird).

Supra brunneus, alis et cauda fusco-nigro frequenter transfasciatis; subtus pallidior, hypochondriis vix, crisso distincte nigro transvittatis, rostri maxilla brunnea, mandibula et pedibus corylinis. Long. tota 4·5, alæ 2·1, caudæ 1·75, rostri a rictu 0·75, tarsi 0·7. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. Mexico [8 9], Totontepec and Capulalpam (*Boucard* [8]), Merida, Yucatan (*Schott* [4], *Gaumer*); Guatemala, Dueñas, Panajachel, Quezaltenango, Coban, &c., and in all villages throughout the country (*O. S. & F. D. G.*); Costa Rica, San José and Quebrada Honda (*Hoffmann* [1]), San José and Barranca (*Carmiol* [3]).

This is the common House-Wren of Guatemala and Costa Rica, being doubtless found in the intermediate country. It also spreads northwards to Yucatan and the Mexican State of Oaxaca, though we have as yet no record of it from Tehuantepec nor yet from Western Mexico. In Eastern Mexico its place seems to be taken by *T. aedon*;

and southwards of Costa Rica the Andean race of *T. furvus* appears. From both of these *T. intermedius* differs in its rufous-brown colour, though in this respect it approaches the Brazilian form of *T. furvus*, the tail, however, being shorter and the crissum more strongly banded.

After being for some time doubtfully referred to *T. aedon* [5], or left unnamed [9], it was described from Costa-Rica specimens as *T. intermedius* [1] by Dr. Cabanis, and the following year as *T. hypaedon* by Mr. Sclater [7] from Mexican and Guatemalan examples. Subsequently Prof. Baird compared Mexican and Costa-Rican birds, and pronouncing them to agree in general appearance, placed both under Dr. Cabanis's name [2].

In Guatemala *T. intermedius* is a very familiar species, being found in villages and towns throughout the country irrespective of elevation, as we observed it at various places from 8000 feet to the sea-level. Its favourite resort is the thatch or tiled roofs of houses, where it lives a restless life in pursuit of food. Its song is lively, but short, and of no great power or compass. It frequently utters a kind of scolding note, which has doubtless gained for it the name of "Curuchichi," which not inaptly expresses it. A nest found at Buenaventura, on the Lake of Panajachel, was in a hole in a bank, the eggs being exactly like those of *T. aedon*, pinkish white, thickly freckled with red spots.

4. **Troglodytes furvus.**

Motacilla furva, Gm. Syst. Nat. i. p. 994 [1].
Troglodytes furvus, Scl. Cat. Am. B. p. 23 [2]; Scl. & Salv. Nomencl. Av. Neotrop. p. 7 [3].
Troglodytes tecellata, D'Orb. & Lafr. Mag. Zool. 1837, Cl. ii. p. 25 [4].
Troglodytes tessellatus, Salv. P. Z. S. 1867, p. 135 [5]; Salv. Ibis, 1869, p. 312 [6]; Scl. & Salv. P. Z. S. 1879, p. 493 [7].
Thriothorus striatulus, Lafr. Rev. Zool. 1845, p. 338 [8].
Troglodytes hypaedon, Lawr. Ann. Lyc. N. Y. vii. p. 320 [9]; Scl. & Salv. P. Z. S. 1864, p. 346 [10] (nec Sclater).
Troglodytes inquietus, Baird, Rev. Am. B. i. p. 143 [11] (ex Lawr. MS.); Lawr. Ann. Lyc. N. Y. viii. p. 174 [12], ix. p. 93 [13].
Thyothorus æquinoctialis, Sw. Orn. Draw. t. 13 [14].
Troglodytes hornensis, Less. Journ. l'Inst. 1834, p. 316 [15].
Troglodytes magellanicus, Gould, P. Z. S. 1836, p. 88 [16].

Supra brunneus, dorso, alis et cauda fusco-nigro transfasciatis; subtus sordide albus, hypochondriis obsolete, crisso conspicue nigro transfasciatis; rostri maxilla cornea, mandibula et pedibus corylinis. Long. tota 4·4, alæ 2·1, caudæ 1·5, rostri a rictu 0·7, tarsi 0·75. (Descr. maris ex Panama. Mus. nostr.)

Hab. Panama, David (*Hicks* [12]), Chitra, Calovevora (*Arcé*), Obispo (*O. S.*), Lion Hill (*M'Leannan* [9 10 11]).—Colombia [7 8]; Ecuador [2]; Guiana [1]; Brazil, &c.—And generally throughout South America in imperfectly segregated races.

We have already spoken of the difficulty we have experienced in attempting to trace differences between specimens of the races of this Wren from various points in South America, and of the conclusion into which we have been forced that they are

inseparable as species, owing to the gradual passage of even the most diverse of the forms from one into another by insensible gradations.

In the 'Nomenclator Avium Neotropicalium' a somewhat similar conclusion was arrived at [3]. Two southern species were there admitted, *T. furvus* and *T. tessellatus*, under the latter name being included all the birds from the Andes and Panama, the former embracing the rest of the South-American Wrens of this form. We now find that the birds of Guiana, the origin of the types of *T. furvus*, are not separable from the Wren of Panama, and that *T. furvus* and *T. tessellatus* blend insensibly together. On the other hand, slight differences in the Central-American *T. intermedius* seem to justify its separation.

The Panama bird which Prof. Baird distinguished by the name of *T. inquietus* [11], besides agreeing with the Guiana Wren, does not differ materially from the birds of Antioquia [7], Bogota [8], and Peru [4]. At Santa Marta it passes into the Trinidad and Venezuela form, in which the marks of the back are less distinct, and is thus connected by insensible degrees with the Wren of the Amazons, Brazil, and Chili. Its northward extension seems tolerably defined, not passing the limits of the State of Panama. In Costa Rica *T. intermedius* takes its place, though *T. inquietus* appears in Mr. Lawrence's list [13] of the birds of that country on our authority.

When crossing the Isthmus of Panama in 1863 we noticed that the notes of the Wren found there differed from those of the Central-American bird, with which we were then well acquainted. It frequented similar places, being a constant attendant about houses and walls of old buildings. Salmon took its eggs at Medellin, in Colombia. These exactly resembled those of *T. aedon*, being thickly freckled with red.

5. Troglodytes solstitialis.

Troglodytes solstitialis, Scl. P. Z. S. 1858, p. 550 [1]; Scl. & Salv. Ex. Orn. p. 45, t. 23. f. 1 [2]; P. Z. S. 1879, pp. 493 [3], 593 [4]; Tacz. P. Z. S. 1874, p. 505 [5].

Supra saturate brunneus, alis et cauda nigro distincte transfasciolatis, striga postoculari distincta fulva; capitis lateribus et corpore subtus dilute fulvis, abdomine medio albicantiore, crisso nigro transfasciato; rostro fusco, pedibus corylinis. Long. tota 3·8, alæ 1·8, caudæ 1·2, rostri a rictu 0·7, tarsi 0·7. (Descr. exempl. ex Costa Rica. Mus. nostr.)

Hab. Costa Rica (*Rogers*).—Colombia [2 3]; Ecuador [1]; Peru [5]; Bolivia [4].

The smaller size, the distinct superciliary stripe, the darker and more uniform tint of the plumage above, and the whiter belly distinguish this species from all the forms of *T. furvus*, it being, in fact, readily distinguishable from that bird. It has an extensive range in the Andes, being found from Bolivia to Antioquia in Colombia, and also in Costa Rica, whence we have recently received three specimens from Mr. Rogers.

T. solstitialis was one of Fraser's discoveries in Ecuador, where he met with it in June 1858 near Matos and Pinipi, villages situated on the eastern slope of the Andes,

not far from Riobamba [1]. Mr. Buckley's recent collections from the same country also contained examples. From Ecuador it has since been traced southwards to Peru [5] and Bolivia [4], and northwards to the Colombian State of Antioquia [3], and now to Costa Rica. It seems to enjoy a considerable range in altitude, as Fraser's specimens were obtained a little under 10,000 feet above the sea, Salmon's in Antioquia at a much lower elevation, and some of Mr. Buckley's at Puna Island, almost at the sea-level. Salmon found its nest, which he describes as placed in a hole in a wall or bank, or any convenient spot, being made of soft blades of grass with an entrance at the side. The eggs are white, spotted with small red spots, but not nearly so profusely as those of *T. aedon*.

6. **Troglodytes brunneicollis.**

Troglodytes brunneicollis, Scl. P. Z. S. 1858, p. 297 [1], 1859, p. 372 [2], 1862, p. 18 [3]; Cat. Am. B. p. 23 [4]; Scl. & Salv. Ibis, 1860, p. 273 [5]; Ex. Orn. p. 46, t. 23. f. 2 [6]; Baird, Rev. Am. B. i. p. 144 [7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545 [8].

Troglodytes aedon?, Scl. P. Z. S. 1859, p. 363 [9] (nec Vieillot).

Troglodytes hyemalis, Scl. P. Z. S. 1856, p. 290 [10]?

Supra fusco-brunneus, dorsi plumis plerumque fasciolis nigris transvittatis; superciliis et capitis lateribus rufescentibus his leviter fusco vittatis; stria postoculari brunnea; uropygio maculis celatis albis notato; alis extus et cauda fasciolis nigris transvittatis; subtus clare fulvo-rufescens, abdomine medio pallidiore; hypochondriis, ventre imo et crisso nigro anguste transfasciatis; rostro nigricante, mandibulæ basi albicante; pedibus pallide corylinis. Long. tota 4·5, alæ 2·1, caudæ 1·8, rostri a rictu 0·75, tarsi 0·85. (Descr. maris ex Capulalpam, Mexico. Mus. nostr.)

Hab. Mexico, ? El Jacale (*Sallé* [10]), La Parada [7] (*Boucard* [2 3 6]), Cinco Señores (*Boucard* [2]), Jalapa (*de Oca* [4 9]), Alpine region of Vera Cruz (*Sumichrast* [7 8]); Guatemala, forests of Volcan de Fuego (*O. S. & F. D. G.* [5]).

This is a well-marked Wren belonging to the group containing *T. aedon* and its allies, being of about the size of that species, and having a tail of similar proportions. In colour, however, it somewhat recalls the North-American *T. hyemalis*, its longer tail, larger size, and clear fulvous colour of the under surface distinguishing it from that species. We suspect, however, that the first specimens obtained by M. Sallé at El Jacale [10], and called *T. hyemalis* by Mr. Sclater, were really *T. brunneicollis*. These birds have now been lost sight of and cannot be traced; but as they are the origin of the only reference to *T. hyemalis* in Mexico, we think that they were very likely misnamed.

The first recognition of this Wren was based upon specimens obtained in December 1857 at La Parada by M. Boucard. This village is in the highlands of Oaxaca, and stands at an elevation of about 10,000 feet above the sea. *T. brunneicollis* has since been traced to many other parts of Southern Mexico, being, according to Prof. Sumichrast, one of the commonest species of the alpine region of Vera Cruz at an elevation of from 5000 feet to 6500 feet above the sea [8].

In Guatemala we never found it much below 6500 feet, in the Volcan de Fuego, where its chief resort is the deep ravines of the mountain and the belt of forest up to between 10,000 and 11,000 feet. It is also not unfrequently met with in the lower part of the tract of pine trees which clothe the upper 3000 feet of the cone. These Wrens are usually seen in small flocks of five or six individuals, which move restlessly amongst grass and shrubs near the ground. They keep carefully out of sight, uttering a rather clear Wren-like call-note.

CISTOTHORUS.

Cistothorus, Cabanis, Mus. Hein. i. p. 77 (1850). (Type *Troglodytes stellaris*, Naum.)

This little genus is structurally not far removed from *Troglodytes*, having a similar nostril with a covering membrane. Its tail is very rounded, the bill short and rather strongly curved. In coloration it is somewhat peculiar, the dorsal feathers in all the species, and those of the head also in some, being conspicuously striated longitudinally. Its habits, too, are also peculiar, as it seems to be found exclusively in marshy spots, frequenting the long rank grass and reeds which usually grow in such places.

In addition to *Cistothorus* Dr. Cabanis proposed a second generic name, *Telmatodytes*, for *C. palustris*; but the differences between the two are too slight to be admissible.

The number of species in the genus is not well ascertained, owing to the difficulty of determining the limits of some of them. Seven or eight names have been suggested at various times, which are perhaps referable to four or five species. Of these, two come within our limits, *Cistothorus palustris*, a northern bird which finds its way into Southern Mexico, and *C. elegans* of Mexico and Central America. The last named bird has a close ally in North America, and does not seem to be separable from a species of wide range in the southern continent to which the name *C. polyglottus*, Vieill., has been applied.

1. Cistothorus palustris.

Certhia palustris, Wils. Am. Orn. ii. p. 58, t. 12. f. 4[1].
Troglodytes palustris, Scl. P. Z. S. 1856, p. 290[2].
Cistothorus palustris, Scl. P. Z. S. 1864, p. 172[3]; Baird, Rev. Am. B. i. p. 147[4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 161[5]; Coues, B. of N.W. p. 34[6]; B. Col. Vall. i. p. 178[7].
Cistothorus palustris, var. *paludicola*, Baird, Rev. Am. B. i. p. 148[8]; Lawr. Mem. Bost. Soc. N. H. ii. p. 268[9].

Supra fulvescenti-brunneus, pilei lateribus et dorso nigris, hoc albido longitudinaliter striolato; alis et cauda nigro variegatis; superciliis elongatis albis; genis, hypochondriis et crisso fulvis; corpore subtus reliquo albido; rostri maxilla fusca, mandibula et pedibus pallide corylinis. Long. tota 4, alæ 2·0, caudæ 1·6, rostri a rictu 0·65, tarsi 0·8. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. N. America, throughout the temperate portions[5 6 7].—Mexico, Mazatlan (*Grayson*[8]), Tomatlan (*Sallé*[2]), near the city of Mexico (*White*[3]).

This common North-American Marsh-Wren is widely distributed in the United States, occurring as a summer visitor in New England, and even straggling to Greenland; thence it appears to spread over the whole country to the Colorado basin, and passes southwards to Southern Mexico. It breeds throughout this wide area, and is probably only migratory in the northern parts of its summer range, as it has been observed in winter as far north as the Columbia river on the west and in the Carolinas on the east coast [6]. In Mexico we know but little of it; but in all probability it is resident there. Guatemala has been included in the range of *C. palustris*, apparently from an incidental statement in Prof. Baird's 'Review of American Birds' [4], where that author speaks of Sclater and Salvin's first article on Guatemala birds as including the mention of a form of *C. palustris* which was unknown to him. This reference is to *C. elegans*; yet all recent works on North-American birds include Guatemala, sometimes with doubt, sometimes without, as within the range of *C. palustris*.

Prof. Baird, in the work just quoted [4], separates the western from the eastern bird, distinguishing the former by the name of var. *paludicola*. But as the species, as Dr. Coues says [7], is subject to a good deal of difference in details of coloration which cannot be satisfactorily correlated with any special sex, age, or season, the difference of race does not seem to be capable of definition with certainty. Dr. Coues keeps both together under the single name *Cistothorus palustris*, which, so far as we can see, is the right way of treating the species. A Mexican specimen in our possession has the scapulars and lower back of a tawny rather than a light brown colour; but this difference may well come within the limits of individual variation.

C. palustris was first brought into general notice by Wilson, who described it as observed by him in Pennsylvania, and figured it in his great work [1]; but it was noticed by Bartram several years before, and mentioned in his 'Travels through Carolina &c.,' under the name of *Motacilla palustris* [7].

The habits of the species, as well as its mode of nidification, are fully described by Brewer [5] and Dr. Coues [6].

2. **Cistothorus polyglottus.** (Tab. VII. fig. 3.)

Todo voz, Azara, Apunt. ii. p. 29. no. 151 [1], undè
Thryothorus polyglottus, Vieill. N. Dict. d'Hist. N. xxxiv. p. 59 [2].
Cistothorus polyglottus, Pelz. Orn. Bras. p. 48 [3]; Scl. & Salv. P. Z. S. 1879, p. 593 [4].
Cistothorus elegans, Scl. & Salv. Ibis, 1859, p. 8 [5], 1860, p. 30 [6]; Baird, Rev. Am. B. i. p. 146 [7]; Salv. P. Z. S. 1870, p. 182 [8].
Cistothorus stellaris, Scl. Cat. Am. B. p. 22 [9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545 [10] (nec Naum.).
Cistothorus æquatorialis, Lawr. Ann. Lyc. N. Y. x. p. 3 [11]?
Cistothorus graminicola, Tacz. P. Z. S. 1874, p. 130 [12]?

Supra fulvescenti-brunneus; alis et cauda (dorso imo quoque obsolete) nigro transversim fasciatis; pilei et inter-

scapulii plumis nigris, medialiter sordide albo striolatis; subtus fulvido-albus, gula et abdomine medio fere albis; crisso obsolete nigro notato; rostri maxilla fusca, mandibula et pedibus pallide corylinis. Long. tota 4·3, alæ 1·75, caudæ 1·75, rostri a rictu 0·6, tarsi 0·7. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. Mexico, Orizaba (*Sumichrast* [10]); Guatemala, Lake of Dueñas [5 6] and grassy summit of Volcan de Agua (*O. S. & F. D. G.*); Panama, Chiriqui (*Arcé* [8]).—Ecuador [11] ?, Peru [12] ?, Bolivia [4], Brazil [3], Paraguay [1].

The question of the value of the differences between the North-American *Cistothorus stellaris* and the Guatemalan bird called *C. elegans* has long been in dispute. After being a party to the separation of the latter in 1859, Mr. Sclater in his 'Catalogue of American Birds,' published in 1862, united it to *C. stellaris*, a course of proceeding Prof. Baird in 1864 pronounced to be hasty, and accordingly granted *C. elegans* full specific rank. In 1874, however, the same writer, with due deliberation and with apparently the same materials before him, followed Mr. Sclater's footsteps of 1862. The facts of the case appear to be as follows:—After making considerable allowance for variation in the size of the bill and in the amount of the striation of the feathers of the head, there still seems to remain as a tolerably permanent difference between the two birds the colour of the lower back and rump, which in *C. stellaris* are marked with longitudinal streaks like the back, and in *C. elegans* are more or less uniform fulvous-brown, occasionally crossed with transverse bars*; the flanks, too, of the southern race are destitute of any bars or spots, and the tarsi seem to be always longer. Guided by these tests we trace *C. elegans* to Bolivia, whence we have a single specimen which has been already called *C. polyglottus* [4], raising the further question whether *C. elegans* is not after all the southern *C. polyglottus*, a bird described by Azara [1] and named by Vieillot [2]. Of the latter bird we have a Nattererian specimen before us, obtained at Villa de Castro in 1820, and a Brazilian example belonging to the National Museum at Washington agreeing well together. The latter has already been set down, with doubt, as *C. elegans*. The only difference of any note between these two birds and *C. elegans* is in size, the wing, and especially the tarsi, being shorter in the Brazilian specimens. As the colour of the flanks and lower back is the same in both, we are inclined to think that the difference in dimensions is not sufficient to be considered of specific value. We are further of opinion that *C. æquatorialis* of Lawrence [11] and *C. graminicola* of Taczanowski [12] are very probably referable to the same species, filling-in, as they do, links in its wide range. Lastly, with regard to the name of this Wren, if, as it seems to us by no means improbable, the North-American bird should be united with the southern (as has been already done by writers on North-American birds), *C. polyglottus*, proposed by Vieillot in 1819, has several years priority, and under this title all the rest should sink to synonyms.

* These are exaggerated in the Plate.

Of this species in Mexico we know but little. Prof. Sumichrast mentions it casually as having been obtained by him in Orizaba. In Guatemala it is of very local distribution, owing, doubtless, to scarcity of grassy swamps, its chief resort. On the western border of the small lake near Dueñas it was always present in the rushes and coarse grass which surround the margin of the open water. This spot was the abode of a good many pairs. Its shy skulking habits make it a bird difficult of observation, and it is only by remaining motionless in a place near to where a bird has made its presence known by its note that an occasional glimpse of it may be obtained. The original specimen of *C. elegans* was thus secured on the 1st of February, 1858; but others were subsequently shot at the end of July and of August, one obtained on the latter date being a young bird in its first moult. The specimen from the Volcan de Agua was found in the long grass which, with scattered pines, clothes the peak of the mountain from 10,000 feet above the sea and upwards. It was at an elevation of 11,000 feet that this bird was shot, in sight of the Lake of Dueñas, but 6000 feet above it, and far from any water. This bird differs in no way from the Dueñas ones, except that its bill is very short, hardly exceeding that of *C. stellaris*.

Of Chiriqui examples we have now seen several: in none are the striæ of the head very distinct; but they show no other peculiarities.

The figure is taken from a Dueñas specimen, the type of *C. elegans*.

Fam. MOTACILLIDÆ.

ANTHUS.

Anthus, Bechstein, Naturg. Deutschl. iii. p. 704 (1807).

The genus *Anthus* has been divided into a number of sections, which have been treated as genera or subgenera according to the views of different ornithologists. In its comprehensive sense *Anthus* contains perhaps fifty species, which are spread over nearly the whole world with the exception of the islands of the Pacific Ocean. Of these, if we exclude *A. pratensis*, which only appears as a straggler in Greenland, eight species occur in America, two in the northern and six in the southern continent. The northern birds, on account of their longer and more pointed wings, have been separated from the southern; and each section has been again divided into two—slight differences in the formation of the point of the wing and in the proportions of the tarsus, toes, and hind claws furnishing characters for their separation. These divisions, however, are barely recognizable, and may all be merged in the genus *Anthus* without difficulty.

In Central America only two species of *Anthus* occur, viz. *Anthus ludovicianus*, which spends the winter months in the highlands of Mexico and Guatemala in small numbers, and *A. rufus*, a southern species of wide range, which just enters our fauna

in the State of Panama, where it is found in scanty numbers in the more open savannas, nowhere very extensive in this district.

1. Anthus ludovicianus.

Alauda ludoviciana, Gm. Syst. Nat. i. p. 793[1].

Anthus ludovicianus, Scl. P. Z. S. 1856, p. 293[2]; Scl. & Salv. Ibis, 1859, p. 9[3]; Baird, Rev. Am. B. i. p. 153[4]; Dugès, La Natur. i. p. 140[5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 171[6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 268[7]; Bull. U.S. Nat. Mus. no. 4, p. 14[8]; Coues, B. N.W p. 40[9]; B. Col. Vall. i. p. 193[10]; Merrill, Pr. U.S. Nat. Mus. i. p. 122[11].

Supra olivaceo-brunneus, plumis singulis medialiter obscure fuscis; alis fuscis albido limbatis; cauda fusca, rectricibus duabus utrinque extimis gradatim albo terminatis, rectricis extimæ pogonio externo utrinque fere omnino albo; superciliis et corpore subtus sordide brunneo-albidis; cervicis lateribus, pectore et hypochondriis fusco-nigro distincte maculatis; rostro nigricante, mandibulæ basi albicante; pedibus obscure corylinis. Long. tota 6, alæ 3·2, caudæ 2·6, rostri a rictu 0·6, tarsi 0·8. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. Whole of North America [6 9 10], Texas [11].—Mexico, Mazatlan (*Grayson*[7]), Guanajuato (*Dugès*[5]), Cordova (*Sallé*[2]), valley of Mexico (*le Strange*), Orizaba (*Sumichrast*[4]), Tehuantepec city (*Sumichrast*[8]); Guatemala, Dueñas (*O. S. & F. D. G.*[3]).

This Pipit is found at one season or another throughout the continent of North America, even as far as Greenland; and stragglers have been detected in Bermuda and Heligoland[4]. It is a strictly migratory bird, passing the winter months in the southern part of its range, and breeding in the far north, Labrador[9], and in the highest peaks of the mountains of Colorado[10].

In Texas Dr. Merrill describes it as very abundant from October to March[11]; and in Mexico[7] and in Guatemala it has only been observed at the same time of year. In the latter country it is by no means common; and we only occasionally met with birds of this species, in small flocks of ten or twelve individuals, from December to February in the open land near Dueñas. Guatemala, therefore, is probably the southern limit of the winter range of *Anthus ludovicianus*. Prof. Baird, however, speaks[4] with doubt of its extension to Peru; but we have no evidence to confirm this statement.

The habits and breeding of this species are fully described in works on North-American ornithology [6 9].

2. Anthus rufus.

Petite Alouette de Buenos Ayres, D'Aub. Pl. Enl. 738, f. 1[1], undè

Alauda rufa, Gm. Syst. Nat. i. p. 798[2].

Anthus rufus, Lawr. Ann. Lyc. N. Y. vii. p. 322[3]; Baird, Rev. Am. B. i. p. 156[4]; Scl. Ibis, 1878, p. 360[5].

Anthus (*Notiocorys*) *parvus*, Lawr. Pr. Ac. Phil. 1865, p. 106[6].

Anthus parvus, Salv. P. Z. S. 1867, p. 135[7].

Anthus chii, Pelz. Orn. Bras. p. 69 (nec Spix)[8].

Anthus peruvianus, Nicholson, P. Z. S. 1878, p. 390[9]?

Supra fuscus, capitis et dorsi plumis pallide fulvo marginatis, alis et cauda fuscis fulvido limbatis; cauda fusco-nigra, rectricibus duabus utrinque externis gradatim fulvo-albidis; subtus cum superciliis sordide albus fulvo (præcipue in pectore) tinctus, pectore fusco-nigro distincte maculato; rostro corneo, mandibulæ basi albicantiore; pedibus flavidis. Long. tota 4·5–5, alæ 2·4, caudæ 1·8, rostri a rictu 0·6, tarsi 0·8. (Descr. maris ex Santa Fé, Panama. Mus. nostr.)

Hab. Panama, Santa Fé (*Arcé*[7]), line of railway (*Galbraith*[3 6]).—South America generally to Peru[5 9] and Brazil[5 8].

When endeavouring in 1867 to determine the proper name for a Veraguan specimen of this little *Anthus*[7], we were quite unable to detect any valid differences between it and Amazonian and Brazilian examples of a bird we believe to be the *Anthus rufus* (Gm.). Since then we have had opportunities of examining other specimens, which have tended to confirm our opinion that all belong to a single species. This, too, is Mr. Sclater's verdict, who has recently carefully investigated the subject[5]. We believe, too, that *Anthus rufus* may be used as the name of the species; for though it does not extend its range to Buenos Ayres, as D'Aubenton's name would imply, the figure can hardly have been drawn from a specimen of any other South-American Pipit. If, however, it can be shown that the name *Anthus rufus* is not strictly applicable to it, Mr. Lawrence's title *A. parvus* may be used without doubt for the Central-American bird.

Of the habits of this species little information has reached us. Mr. Galbraith[3] found it on the savannas near Panama, where it builds its nest on the ground, the male ascending above the nest and remaining singing in the air for a long time. Mr. Wallace[5] observed it in tolerable abundance on the open dry plains in the island of Mexiana at the mouth of the Amazons; and Natterer obtained[8] specimens near Rio Janeiro at pools in the road and in the swamps.

Fam. MNIOTILTIDÆ *.

Subfam. *MNIOTILTINÆ* †.

MNIOTILTA.

Mniotilta, Vieillot, Anal. p. 45 (1816). (Type *Motacilla varia,* Linn.)
Mniotilta, Baird, Brew. & Ridgw. N. Am. B. i. p. 180.

This genus contains but a single species, which differs from the other genera of this

* In the arrangement of this family we have to a great extent followed the system elaborated by Prof. Baird in his 'Review of American Birds,' and used again in the 'History of North-American Birds.' Dr. Coues has also followed the same general plan in his 'Birds of the Colorado Valley,' where, however, he has reduced Prof. Baird's four subfamilies to three, introducing thereby greater simplicity of arrangement. The family itself is on all hands confessedly one of arbitrary rather than natural limits; but materials are not ripe for a satisfactory recasting of it and the obviously allied groups *Cœrebidæ*, *Tanagridæ*, &c.

† *Cf.* Coues, B. Col. Vall. i. p. 203.

group in the elongation of the toes (especially the hind toe), enabling the species to creep about the trunks of trees much like the Certhiidæ or Sittidæ. The single species is a common North-American bird, which passes the winter months in large numbers in Mexico and Central America.

1. **Mniotilta varia.**

Motacilla varia, Linn. Syst. Nat. i. p. 333 [1].

Mniotilta varia, Bp. P. Z. S. 1837, p. 118 [2]; Scl. P. Z. S. 1856, pp. 140 [3], 291 [4], 1858, p. 298 [5], 1859, pp. 363 [6], 373 [7], 1864, p. 172 [8]; Scl. & Salv. Ibis, 1859, p. 10 [9]; P. Z. S. 1864, p. 347 [10]; Cab. J. f. Orn. 1860, p. 328 [11]; Lawr. Ann. Lyc. N. Y. vii. p. 322 [12], viii. p. 174 [13], ix. p. 93 [14]; Mem. Bost. Soc. N. H. ii. p. 269 [15]; Bull. U.S. Nat. Mus. no. 4, p. 15 [16]; Dresser, Ibis, 1865, p. 476 [17]; Baird, Rev. Am. B. i. p. 167 [18]; Salv. P. Z. S. 1867, p. 135 [19], 1870, p. 182 [20]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546 [21]; Frantz. J. f. Orn. 1869, p. 292 [22]; Baird, Brew. & Ridgw. N. Am. B. i. p. 180 [23]; Coues, B. Col. Vall. i. p. 204 [24]; Gundl. Orn. Cub. p. 63 [25]; Merrill, Pr. U.S. Nat. Mus. i. p. 122 [26].

Supra nigra, dorso toto albo striato, stria verticali et altera utrinque per oculos ducta albis; alis nigris, fasciis duabus albis notatis, remigibus primariis anguste, secundariis late albis; cauda nigra, rectricibus extimis versus apicem albo notatis; subtus alba, gutture toto et hypochondriis nigro pervittatis; rostro corneo; pedibus nigris. Long. tota 4·8, alæ 2·7, caudæ 2, rostri a rictu 0·65, tarsi 0·6. (Descr. exempl. ex Vera Paz, Guatemala. Mus. nostr.)

♀ aut avis junior subtus multo albicantior, genis, pectore et hypochondriis nigro sparsim vittatis. (Descr. feminæ ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Eastern North America [23 24], Texas [17 26].—Mexico, Mazatlan (*Grayson* [15]), Colima (*Xantus* [15]), valley of Mexico (*White* [8]), Cordova (*Sallé* [4]), Jalapa (*de Oca* [6]), Orizaba (*Sumichrast* [21], *le Strange*), La Parada [5], Juquila, and Totontepec (*Boucard* [7]), Guichicovi, Tehuantepec (*Sumichrast* [16]); British Honduras, Belize (*O. S.* [9]); Guatemala (*Velasquez* [2]), Retalhuleu [18], Patio Bolas, Escuintla, Dueñas [10], Volcan de Agua, Volcan de Fuego, San Gerónimo, Tactic, Coban, and Choctum (*O. S. & F. D. G.*); Costa Rica (*Hoffmann* [11]), Punta Arenas (*Dow* [18]), Barranca, Juiz, San José, and Angostura (*Carmiol* [14]), San Juan and Candelaria Mountains (*Frantzius* [22]); Panama, Chiriqui (*Bridges* [3], *Hicks* [13], *Arcé* [20]), Santa Fé [19], Chitra, Cordillera del Chucu, and Calovevora (*Arcé* [20]), line of railway (*M'Leannan* [12 10]). —Colombia [24]; Venezuela [24]; and Antilles [1 24], Cuba [25] &c.

This is one of the commonest of the migratory Mniotiltidæ in Central America during the autumn and winter seasons, arriving there about the middle of August, and leaving again in April. During these months it spreads over the whole country from the sea-level to an altitude of some 7000 or 8000 feet. In its winter migration it passes into South America; and specimens not unfrequently occur in collections made near Bogotá. This is, perhaps, the most southern point of its range; but it extends eastwards through Venezuela and Trinidad. In the Antilles it has been noticed in all the larger islands, and as far eastward as the island of Santa Cruz; but it has not been

recorded from the Windward Islands, which, doubtless, lie to the eastward of its route of migration. In Jamaica it is said that a few remain to breed [23]; but in Cuba none have been observed to do so [25].

The range of *Mniotilta varia* in North America is extensive; but the bird is said to be nowhere abundant. It does not pass the Rocky Mountains, and reaches the Pacific at no point north of Mazatlan. In the States, except perhaps in Texas, it is essentially a summer visitant, and it breeds throughout the country from Texas (where Heermann found its nest) northwards. Its habits are well described by Brewer [23] as resembling those of a Creeper (*Certhia*) in its constant practice of climbing along the limbs and stems of trees in search of food. In its winter quarters a sharp call is the only note it utters; but in the breeding-season its song is described as sweet and pleasing though not powerful.

The nest is always built upon the ground.

PROTONOTARIA.

Protonotaria, Baird, B. N. Am. p. 239 (1858). (Type *Motacilla citrea,* Bodd.)
Protonotaria, Baird, Brew. & Ridgw. N. Am. B. i. p. 183.

A single, peculiar-looking species constitutes this genus—a bird with a long bill and long wings, and remarkable for the purity of the yellow colour of its head and underparts. The species is a scarce one in Central America, visiting Yucatan, Costa Rica, and Panama during the winter months, and passing the summer in the Southern States.

1. Protonotaria citrea.

Figuier à ventre et tête jaunes de la Louisiane, D'Aub. Pl. Enl. 704, f. 2 [1], undè
Motacilla citrea, Bodd. Tabl. Pl. Enl. p. 44 [2].
Helminthophaga citrea, Cab. J. f. Orn. 1861, p. 85 [3].
Protonotaria citrea, Baird, Rev. Am. B. i. p. 173 [4]; Lawr. Ann. Lyc. N. Y. ix. pp. 94 [5], 200 [6]; Frantz. J. f. Orn. 1869, p. 292 [7]; Scl. & Salv. P. Z. S. 1870, p. 780 [8], 1879, p. 494 [9]; Baird, Brew. & Ridgw. N. Am. B. i. p. 184 [10]; Coues, B. N.W. p. 47 [11]; Gundl. Orn. Cub. p. 62 [12].

Supra olivaceo-virescens, uropygio, alis extus et cauda (rectricibus duabus mediis) cærulescenti-cinereis; capite toto et corpore subtus lætissime flavis, subalaribus et crisso albis; rectricibus (præter duabus mediis) albis, pogonio externo et apicibus nigris; rostro corneo, pedibus plumbeis. Long. tota 5, alæ 2·8, caudæ 1·8, rostri a rictu 0·75, tarsi 0·75. (Descr. exempl. ex Veraguas, Panama. Mus. nostr.)

Hab. North America, South-eastern States [10 11].—Mexico, Merida, Yucatan (*Schott* [6]); Costa Rica [3], Punta Arenas (*J. M. Dow* [4 5], *v. Frantzius* [7]); Panama, Veraguas (*Arcé*), line of railway (*Mus. G. N. Lawrence*).—Colombia [9]; Venezuela [8]; Cuba [12].

In its summer quarters the Prothonotary Warbler is restricted to the southern region of the eastern section of the United States, being chiefly found in Kansas,

Southern and Central Illinois, Missouri, and in Kentucky; but stragglers are occasionally met with as far north as Washington and even New Brunswick. Dr. Woodhouse also observed it in numbers in Texas, where, however, recent observers do not mention its occurrence. Its time of residence in these districts extends from April to October, during which it breeds. The rest of the year it spends within the tropics, its line of migration nearly coinciding with that of *Geothlypis philadelphia*. It is found in Northern Yucatan; but nowhere else in Mexico or Central America until we come to Costa Rica, where, and in the State of Panama, a few specimens have been obtained. In the Southern continent its range seems confined to the north-western coast, as specimens have reached us from the State of Antioquia[8 9], the neighbourhood of Santa Marta, and from near Merida in Venezuela[7]. In its spring migration it is occasionally (but rarely) met with in Cuba in the month of April[12], but not elsewhere in the Antilles.

The bird is described as being one of the shyest and most silent of all the Warblers. Its place of abode is usually in bushy swamps on the margin of stagnant pools. Its nest is placed in a hollow snag, a Woodpecker's hole being often chosen for its site[10].

HELMINTHOTHERUS.

Helmitherus, Rafinesque, Journ. de Phys. lxxxviii. p. 417 (1819) (fide Baird). (Type *Motacilla vermivora*, Gm.)

Helmitherus, Baird, Brew. & Ridgw. N. Am. B. i. p. 186.

Two not very closely allied species are usually placed in this genus—*H. vermivorus*, the bird treated of below, and *H. swainsoni*, a rare species of which little is known, a few specimens only having as yet been met with in the South-eastern States and in Cuba and Jamaica. For the latter bird a separate generic name *Helinaia* was proposed by Audubon. *Helminthotherus*, though differing greatly in coloration, is structurally not far removed from *Protonotaria*, and has a long bill like that bird, and the middle toe about equal to the tarsus. The bill, however, is rather stouter, the culmen somewhat depressed, and the rictal bristles more fully developed. *H. vermivorus* is a strictly migratory species, spending the winter in Mexico and Central America.

1. Helminthotherus vermivorus.

Motacilla vermivora, Gm. Syst. Nat. i. p. 951[1].

Helmitherus vermivorus, Scl. & Salv. Ibis, 1859, p. 11[2]; Scl. P. Z. S. 1859, p. 363[3]; Cab. J. f. Orn. 1860, p. 328[4]; Baird, Rev. Am. B. i. p. 179[5]; Lawr. Ann. Lyc. N. Y. ix. pp. 94[6], 200[7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[8]; Baird, Brew. & Ridgw. N. Am. B. i. p. 187[9]; Gundl. Orn. Cub. p. 63[10].

Helmintherus vermivorus, Salv. P. Z. S. 1867, p. 135[11]; Frantz. J. f. Orn. 1869, p. 293[12]; Coues, B. Col. Vall. i. p. 211[13].

Vermivora pennsylvanica, Gosse, B. Jam. p. 150[14] (ex Sw.).

Supra olivascenti-viridis, alis et cauda concoloribus; capite toto et corpore subtus pallide ochraceo-fuscis, illo fasciis quatuor nigris ornato, duabus verticis utrinque ductis a naribus ad nucham et duabus postocularibus; abdomine medio albicante; rostro corneo, mandibula et pedibus carneis. Long. tota 5·0, alæ 2·8, caudæ 2·2, rostri a rictu 0·7, tarsi 0·75. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

Hab. Eastern North America, from New England States southwards [9 13].—Mexico, Jalapa (*de Oca* [3]), Mountains of Orizaba (*Sumichrast* [8]), Merida, Yucatan (*Schott* [7]); Guatemala [2], Dueñas, Tactic, Coban, Khamkal, Choctum (*O. S. & F. D. G.*); Costa Rica (*Hoffmann* [4]), San José (*v. Frantzius* [12], *Carmiol* [6]); Panama, Boquete de Chitra, Santa Fé [11] (*Arcé*).—Cuba [10]; Jamaica [14].

Helminthotherus vermivorus is a winter visitant to South-eastern Mexico, Guatemala, Costa Rica, and a portion of the adjoining State of Panama, arriving in September and leaving again in April or May. It is also found during the same season in Cuba and Jamaica, but does not reach any part of the continent of South America, the most southern point of its range yet recorded being Santa Fé in the State of Panama. In Guatemala it is by no means uncommon during the months it remains in the country, and is pretty generally distributed everywhere, preferring the woods of the highlands of Dueñas and Coban—not exclusively, however, as we obtained many specimens from Choctum and its neighbourhood in the hot forests about 1200 feet above the sea. Like other members of the family, it is restless, but is rather slow in its movements and not shy.

In its summer quarters in the United States it is spread over a wide area in the eastern section of the country, but nowhere abundantly. It probably breeds throughout its summer range, building a nest on the ground composed of dry leaves and lined with fine mosses [9].

Bibliographical references to this species are fully given in Dr. Coues's recent work [13].

HELMINTHOPHAGA.

Helminthophaga, Cabanis, Mus. Hein. i. p. 20 (1850–51) (type *Motacilla chrysoptera*, Linn.); Baird, Brew. & Ridgw. N. Am. B. i. p. 191.

A short, delicate, sharply-pointed bill, without any notch, forms one of the chief characters of this genus. The tarsus is long, compared with the middle toe; and the rictal bristles are not perceptible. Five out of the ten species that are now known occur within our limits as winter visitants. The remaining five, all more or less rare species, do not, so far as is yet known, pass beyond the limits of the United States. The species of *Helminthophaga* can be divided into two groups, to be recognized by the presence or absence of a conspicuous white patch on the tail.

a. *Cauda albo conspicue maculata.*

1. Helminthophaga chrysoptera.

Motacilla chrysoptera, Linn. Syst. Nat. i. p. 333[1].
Helminthophaga chrysoptera, Scl. & Salv. Ibis, 1860, p. 397[2]; P. Z. S. 1864, p. 347[3]; 1879, p. 494[4]; Cab. J. f. Orn. 1860, p. 328[5]; Lawr. Ann. Lyc. N. Y. vii. p. 293[6]; ix. p. 94[7]; Baird, Rev. Am. B. i. p. 175[8]; Salv. P. Z. S. 1867, p. 135[9]; 1870, p. 182[10]; Frantzius, J. f. Orn. 1869, p. 293[11]; Baird, Brew. & Ridgw. N. Am. B. i. p. 192[12]; Coues, B. Col. Vall. i. p. 216[13]; Gundl. Orn. Cub. p. 63[14]; Merrill, Pr. U.S. Nat. Mus. i. p. 123[15].
Sylvicola inornata, Sw. Phil. Mag. new ser. i. p. 434[16].

Supra grisea, dorso medio et alis extus oleagineo lavatis, capite summo et tectricibus alarum lætissime flavis; capitis lateribus et gula tota nigerrimis; subtus alba, hypochondriis griseo tinctis; rostro et pedibus brunnescentibus. Long. tota 4·5, alæ 2·4, caudæ 2, rostri a rictu 0·6, tarsi 0·7. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

Femina mari similis sed capite summo olivaceo nec flavo et alis fasciis duabus flavis notatis; capitis lateribus et gula cinereis nec nigris distinguenda. (Descr. feminæ ex Coban, Guatemala. Mus. nostr.)

Hab. North America, Eastern province[12], Canada[13], Texas[15].—Mexico (*Bullock*[16]); Guatemala, Coban, Choctum[2] (*O. S. & F. D. G.*); Costa Rica (*Hoffmann*[5]), Barranca (*Carmiol*[7]), Candelaria Mountains (*v. Frantzius*[11]), Dota Mountains (*Carmiol*), Irazu (*Rogers*); Panama, Chiriqui, Santa Fé[9], Calovevora[10] (*Arcé*), Lion Hill (*M'Leannan*[6 3]).—Colombia[4]; Cuba[14].

Though found in spring in Texas[15], this species appears to avoid Mexico in its migration southwards, the only record of its occurrence in that country being Swainson's reference to it under the name *Sylvicola inornata*[16]. In Guatemala it only came under our notice in Vera Paz in the neighbourhood of Coban and Choctum; and here it is not by any means common in winter. It is not until we come to Costa Rica that *H. chrysoptera* is found in abundance; but there, as well as in the adjoining State of Panama and in the north-western portions of the continent of South America, considerable numbers pass the winter. The furthest southern point reached by it is the neighbourhood of Bogotá, whence we have received several specimens. In Cuba Dr. Gundlach says that it is of accidental occurrence in the vicinity of Havana during its passage northwards in April[14].

In the north it is described as nowhere a common species, and as distributed over a comparatively small extent of country, comprising Georgia, Massachusetts, New Jersey, Missouri, and Wisconsin, but straying outside these limits[12]. Little is recorded of its habits beyond the description of its nest and eggs—the former being composed outwardly of dry leaves interwoven with roots, strips of bark, &c., and lined with fine leaves, grasses, and roots. This nest is usually placed in a low bush or on the ground in a tussock of grass[12].

Dr. Coues gives full references to the literature of this species[13].

2. **Helminthophaga pinus.**

Certhia pinus, Linn. Syst. Nat. i. p. 187[1].

Helminthophaga pinus, Scl. & Salv. Ibis, 1859, p. 11[2]; Baird, Rev. Am. B. i. p. 174[3]; Baird, Brew. & Ridgw. N. Am. B. i. p. 195[4]; Coues, B. Col. Vall. i. p. 214[5]; Merrill, Pr. U.S. Nat. Mus. i. p. 123[6].

Sylvia solitaria, Wils. Am. Orn. ii. p. 109, t. 15. f. 4[7].

Vermivora solitaria, Sw. Phil. Mag. new ser. i. p. 434[8].

Helmitheros solitarius, Scl. P. Z. S. 1856, p. 291[9].

Supra olivaceo-viridis, alis et cauda cinereis, illis fasciis duabus albis notatis; vertice antico et corpore subtus flavis, loris nigris, crisso albo; rostro et pedibus brunnescentibus. Long. tota 4·5, alæ 2·4, caudæ 1·9, rostri a rictu 0·6, tarsi 0·7. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Hab. North America, Eastern States[4 5], Texas[6].—Mexico[3], Vera Cruz (*Bullock*[8]) Jalapa (*Deppe, Mus. Berol.*), Cordova (*Sallé*[9]); Guatemala[2], Retalhuleu, Coban[3], Choctum, Teleman (*O. S. & F. D. G.*)

Helminthophaga pinus is by no means a common bird in either Mexico or Central America in winter, the only time of year it is to be found there. Besides being included in Swainson's list of Bullock's birds, the evidence of its occurrence in Mexico is almost confined to the appearance of its name in the first list of Mons. Sallé's birds[9], to the existence of one of Deppe's specimens in the Berlin Museum, and to the mention of a Mexican specimen in the Smithsonian Institution[3]; the bird seems to have been unnoticed by de Oca, Sumichrast, and other assiduous collectors in Mexico. In Guatemala it occurs most frequently in the neighbourhood of Coban; but, besides being found in this mountain-region, we obtained it almost at the sea-level in the Polochic valley and at Retalhuleu, less than 1000 feet above the Pacific Ocean. Like so many of its family, it is to be found in the neighbourhood of cleared ground.

In the States, though it occurs in Texas[6], it is almost exclusively an eastern bird. Here it spends the breeding-season, remaining from the early part of May to September or October[4]. Its nest is described by Wilson[7]; but his account of it does not tally with that of Mr. Ridgway, who found several near Mount Carmel in Illinois, where the bird is plentiful. The latter authority says that the nest is a very loose open structure, composed chiefly of broad thin flexible strips of bark.

The synonymy of this bird has been much involved with that of *Dendræca pinus*, a very different species. The difficulties connected with this question have been carefully unravelled by Dr. Coues[5].

b. *Cauda uniformis, macula alba nulla.*

3. **Helminthophaga ruficapilla.**

Sylvia ruficapilla, Wils. Am. Orn. iii. p. 120, t. 27. f. 3[1].

Helminthophaga ruficapilla, Scl. P. Z. S. 1858, p. 298[2]; 1859, p. 373[3]; Baird, Rev. Am. B. i.

p. 175[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 196[6]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 15[7]; Coues, B. Col. Vall. i. p. 224[8]; Sennett, Bull. U.S. Geol. Surv. iv. p. 12[9]; Merrill, Pr. U.S. Nat. Mus. p. 123[10]; Salv. Cat. Strickl. Coll. p. 89[11].

Helmitheros rubricapillus, Scl. P. Z. S. 1856, p. 291[12].

Helminthophaga rubricapilla, Scl. P. Z. S. 1859, p. 363[13].

Supra flavido-olivacea, uropygio paulo flavescentiore; capite cinereo, vertice castaneo plus minusve obtecto; loris et oculorum ciliis albis; subtus læte flava, ventre imo albicante; rostro et pedibus corneis. Long. tota 4·5, alæ 2·4, caudæ 1·85, rostri a rictu 0·5, tarsi 0·65. (Descr. exempli ex Jalapa, Mexico. Mus. nostr.)

Hab. North America[1], Eastern province especially[5 8], Texas[9 10], and Arizona[8].—Mexico, Cordova (*Sallé*[12]), Jalapa (*de Oca*[13]), Orizaba (*Sumichrast*[5]), La Parada (*Boucard*[2]), Oaxaca (*Boucard*[3]), Santa Efigenia, Tehuantepec (*Sumichrast*[7]); Guatemala (*Constancia*[11]).

A well-known winter visitant to Southern Mexico, where it has been noticed by many collectors. In Guatemala it never came under our own observation or that of any of the bird-hunters employed by us; but as long ago as 1848, and again in 1851, the late Don José Constancia sent specimens to Strickland from Guatemala, which are still in his collection at Cambridge[11]. The bird has never been traced south of this point, nor is there any record of its occurrence in the West Indies.

Under the name of the Nashville Warbler, *H. ruficapilla* was long considered a rare species in the States and confined in its range to the Eastern province. Within the last few years, however, it has been traced throughout a much wider area, and found to occur in many parts of the Middle province, at Fort Tejon in California, in Arizona, and in the north, as a straggler, even in Greenland[6]. Its breeding-quarters, as far as at present known, lie chiefly in the New-England States, especially Massachusetts[6]; but Dr. Coues thinks that it may be found nesting much further south, in the Alleghany Mountains, in the Rocky Mountains, and in the sierras of California[8].

4. Helminthophaga celata.

Sylvia celata, Say in Long's Exp. i. p. 169[1].

Helmitheros celatus, Scl. P. Z. S. 1857, p. 212[2].

Helminthophaga celata, Scl. P. Z. S. 1858, p. 298[3], 1859, p. 373[4], 1862, p. 19[5]; Baird, Rev. Am. B. i. p. 176[6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[7]; Sennett, Bull. U.S. Geol. Surv. iv. p. 12[8]; Merrill, Pr. U.S. Nat. Mus. i. p. 123[9]; Coues, B. Col. Vall. i. p. 226[10].

Helminthophaga celata, var. *celata*, Baird, Brew. & Ridgw. N. Am. B. i. p. 202[11].

Supra flavido-olivacea, uropygio paulo flavescentiore; capite dorso concolori, vertice fulvo plus minusve celato; superciliis, loris et corpore subtus flavescentibus; rostro et pedibus corneis. Long. tota 4·3, alæ 2·3, caudæ 1·8, rostri a rictu 0·7, tarsi 0·8. (Descr. exempl. ex Chimuy, Vera Paz. Mus. nostr.)

Hab. North America generally, but especially the Middle and Western provinces,

Colorado valley [10], Texas [8 9].—Mexico [6], Orizaba (*Botteri* [2], *Sumichrast* [7]), La Parada (*Boucard* [3 5]), Oaxaca and Cinco Señores (*Boucard* [4]); Guatemala, Chimuy, Vera Paz (*Sarg*).

This species has come under the notice of most of the collectors in Southern Mexico, where it appears to pass the winter months. It is found in the mountainous parts of the country, being apparently absent from the low-lying lands adjacent to the two oceans. In Guatemala it never came under our own notice; but a short time ago we obtained a skin from Herr Schneider, of Basle, to whom it had been sent by Mr. Sarg from Chimuy, a place in the vicinity of Coban, Vera Paz. This proves that the bird sometimes wanders thus far in its winter migration.

Beyond our frontier it has been noticed during the colder months in Texas [8 9]. Thence it spreads throughout the States and northwards to the Yukon river and the Great Slave Lake. In the eastern States it is rare and of uncertain occurrence, but yet has been met with in various places from Florida to Massachusetts [10].

H. celata breeds in the Arctic regions and in the higher mountains of Colorado, building on the ground a nest composed outwardly of fibrous bark and inwardly of grasses and moss and sometimes with a lining of some kind of fur [10].

The species seems subject to some variation in the colour of its plumage. This in the countries bordering the Pacific takes a more decided character; hence these birds have been separated as a race and called *H. celata*, var. *lutescens* *.

5. Helminthophaga peregrina.

Sylvia peregrina, Wils. Am. Orn. iii. p. 83, t. 25. f. 2 [1].

Helminthophaga peregrina, Scl. P. Z. S. 1859, p. 373 [2]; Cat. Am. B. p. 29 [3]; Scl. & Salv. Ibis, 1860, p. 31 [4]; P. Z. S. 1864, p. 347 [5], 1870, p. 836 [6]; Cab. J. f. Orn. 1861, p. 85 [7]; Lawr. Ann. Lyc. N. Y. vii. p. 322 [8], viii. p. 174 [9], ix. p. 94 [10]; Bull. U.S. Nat. Mus. no. 4, p. 15 [11]; Salv. P. Z. S. 1867, p. 135 [12], 1870, p. 182 [13]; Frantzius, J. f. Orn. 1869, p. 293 [14]; Wyatt, Ibis, 1871, p. 322 [15]; Baird, Brew. & Ridgw. N. Am. B. i. p. 205 [16]; Coues, B. Col. Vall. i. p. 230 [17]; Gundl. Orn. Cub. p. 63 [18]; Merrill, Pr. U.S. Nat. Mus. i. p. 123 [19]; Salv. & Godm. Ibis, 1880, p. 117 [20].

♂ supra olivaceo-virescens, alis et cauda fuscis viridescenti limbatis; capite summo cinereo; loris, superciliis et corpore subtus albidis, pectore vix ochraceo tincto; rostro et pedibus corneis. Long. tota 4·5, alæ 2·7, caudæ 1·8, rostri a rictu 0·55, tarsi 0·65. (Descr. exempl. ex Chiriqui, Panama. Mus. nostr.)

♀ (et av. juv.) mari similis sed capite summo dorso concolori et corpore subtus præter abdomen medium plus minusve viridi lavato. (Descr. feminæ ex San José, Costa Rica. Mus. nostr.)

Hab. North America, chiefly eastern parts, west to Colorado [17], Texas [19].—Mexico [23], Jalapa (*de Oca* [3]), Santa Efigenia (*Sumichrast* [11]); Guatemala [3], Dueñas, Coban [4], Lanquin [3] (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [6]); Costa

* Baird, Brew. & Ridgw. N. Am. B. i. p. 204.

Rica [7], San José and Grecia (*Carmiol* [10]), Dota Mountains (*v. Frantzius* [14]); Panama, David (*Hicks* [9]), Volcan de Chiriqui, Calovevora (*Arcé* [13]), Lion Hill (*M'Leannan* [8 5]). —Colombia [15 20].

In its southern migration this species barely touches Mexico, though it has been several times reported from that country [2 3]. In Cuba it is even more rare, as Dr. Gundlach tells us that only two specimens have as yet come under his notice [18]. In Guatemala, especially in the vicinity of Coban, and thence southwards to the isthmus of Panama, the bird is a common one in the winter months; and here it must be that most of the birds rest during that season. In South America its presence is only known at the extreme north-western end of the continent. Here Mr. Simons obtained examples near Minea in the Sierra Nevada of Santa Marta [20], and Mr. Wyatt others in the valley of the Magdalena [15].

In the States this species is known as the "Tennessee Warbler," it having been discovered by Alexander Wilson in that State; but in all but the most northern States it is a bird of passage, breeding in comparatively high latitudes [17]. Its range and habits are given by Dr. Brewer [16], who also describes its nest as being a nearly flat bed of dry matted stems of grass, less than an inch in thickness, and three inches in diameter.

PARULA.

Parula, Bonaparte, Comp. List, p. 20 (1838) (type *Parus americanus,* Linn.); Baird, Brew. & Ridgw. N. Am. B. i. p. 207.

Compsothlypis, Cabanis, Mus. Hein. i. p. 20 (1850–51).

In this genus the bill is acute as in *Helminthophaga*; but a subterminal notch is faintly shown, and the rictal bristles are distinct and strong though short; the tarsus is longer than the middle toe; the more typical species have a triangular patch of olive-green on the back, and white spots on the tail. *P. superciliosa* and *P. gutturalis* have the tail without spots—the former with the back entirely olive-green, and the latter with a black triangular dorsal patch. Six species of the seven constituting the genus are included in this work, of which *P. americana*, the only strictly northern bird, enters our limits as a winter immigrant. *P. inornata*, *P. insularis*, and *P. nigrilora* are all slight modifications of the southern *P. pitiayumi*; the first-named ranging from Guatemala to the State of Panama, the second peculiar to the Tres Marias islands and Socorro, and the last to the Rio-Grande valley. *P. superciliosa* is restricted to the highlands of Southern Mexico and Guatemala, and *P. gutturalis* to the mountains of Costa Rica and the adjoining parts of the State of Panama.

a. *Cauda albo maculata.*

1. Parula americana.

Parus americanus, Linn. Syst. Nat. i. p. 341 [1].
Sylvicola americana, Scl. P. Z. S. 1857, p. 202 [2].
Parula americana, Scl. & Salv. Ibis, 1859, p. 10 [3]; Baird, Rev. Am. B. i. p. 169 [4]; Lawr. Ann. Lyc. N. Y. ix. p. 200 [5]; Bull. U.S. Nat. Mus. no. 4, p. 15 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546 [7]; Baird, Brew. & Ridgw. N. Am. B. i. p. 208 [8]; Gundl. Orn. Cub. p. 62 [9]; Sennett, Bull. U.S. Geol. Surv. iv. p. 11 [10]; Merrill, Pr. U.S. Nat. Mus. i. p. 123 [11]; Coues, B. Col. Vall. i. p. 208 [12].

♂ supra cærulescenti-grisea, dorso medio olivaceo, loris nigris, maculis ciliaribus albis, alis albo bifasciatis, cauda extus albo notata; subtus gula et abdomine antico flavis, pectore torque cæruleo-nigricante ornato, abdomine postico albo; rostri maxilla nigra, mandibula flava; pedibus obscure corylinis. Long. tota 4·5, alæ 2·35, caudæ 1·7, rostri a rictu 0·5, tarsi 0·7. (Descr. maris ex Washington, U.S. Smiths. Inst. no. 28266. Mus. nostr.)

♀ supra undique olivaceo tincta, torque pectorali nullo. (Descr. feminæ ex Progreso, Yucatan. Mus. nostr.)

Hab. Eastern North America [8], westwards to the foot of the Rocky Mountains [12], Texas [10 11].—Mexico, Tlacotalpam (*Sallé* [2]), Orizaba (*Sumichrast* [7]), Santa Efigenia, Tehuantepec (*Sumichrast* [6]), Merida, Yucatan (*Schott* [5]), Progreso (*Gaumer*); Guatemala [3], Coban (*O. S. & F. D. G.*).—Cuba [9] and Northern Antilles [4].

Parula americana is the only strictly migratory species of its genus. It passes the breeding-season in the more northern States and Canada, and the winter months in Florida [12], Mexico, Guatemala, and the Northern Antilles. In the intervening country it is known as a bird of passage during its spring and autumn migrations. In Mexico it touches the Pacific coast only in the extreme south, being absent from the western coast generally. On the eastern side it appears in the vicinity of Orizaba and in Northern Yucatan, and thence passes southwards to Coban in Guatemala, the only place in that country where we ever met with it. Here it was not uncommon from November onwards through the winter; and specimens used to be brought to us by the Indian boys, shot by their blowpipes in the outskirts of the town. Full-plumaged males, however, are seldom secured; and the same is the case in Cuba—because, as Dr. Gundlach says, they migrate at the period of assuming their breeding-dress. In the Antilles, from Cuba to St. Thomas and St. Croix, *P. americana* is very abundant in the winter months; but it does not pass southward of these islands, and is quite unknown on the southern continent.

The chief resort of this species is high woods, where it searches for its food amongst the higher branches. Its song, according to some authorities, is barely worthy of the name, as its notes are feeble and few; others describe it as consisting of a varied and pleasing series of notes [8]. The nest is sometimes fastened to the trunk of a tree, but is more usually suspended from a branch some six or eight feet from the ground and

surrounded by long hanging mosses. Its shape varies from the simple weaving of the surrounding moss, in which a small hole leads to a cup-shaped chamber, to a globular pensile nest without lining and having an entrance in one side [8].

Though a well-marked species without any near allies, the synonymy of *Parula americana* is a long story, the intricacies of which Dr. Coues has unravelled with great care and patience [12].

2. **Parula inornata.** (Tab. VIII. fig. 1.)

Parula inornata, Baird, Rev. Am. B. i. p. 171 [1]; Lawr. Ann. Lyc. N. Y. ix. p. 93 [2]; Salv. P. Z. S. 1870, p. 182 [3].

Parula brasiliana, Scl. & Salv. P. Z. S. 1860, p. 397 (nec Licht.) [4].

Supra cærulescenti-schistacea, plaga magna dorsali oleaginea; fronte, loris et genis nigricantibus; alis dorso concoloribus; subtus flavissima, crisso albo; cauda utrinque albo notata; rostri maxilla nigra, mandibula flava; pedibus corylinis. Long. tota 4·3, alæ 1·9, caudæ 1·55, rostri a rictu 0·5, tarsi 0·65. (Descr. exempli ex Choctum, Vera Paz. Mus. nostr.)

Obs. Specimina quædam ex statu Panamensi maculas alares albas serie singula nec duplici positas habent.

Hab. Guatemala, Choctum (*O. S. & F. D. G.* [1 3]); Costa Rica, Barranca and Dota Mountains (*F. Carmiol* [2]), Angostura (*J. Carmiol*); Panama, Volcan de Chiriqui, Boquete de Chitra, Calobre (*Arcé* [3]).

It is questionable if *P. inornata* is really specifically distinct from its southern ally *P. pitiayumi*, from which the typical bird differs in the absence of the two white wing-bars so conspicuous in the southern race.

The Guatemalan bird which Prof. Baird described has a plain-coloured wing with only faint indications of the distal wing-bar; but in specimens from the State of Panama this bar is clearly shown, the proximal bar being just indicated by obsolete spots. These birds, therefore, are distinctly intermediate between the unbanded *P. inornata* and the double-banded *P. pitiayumi*, and might almost as well be placed with one as with the other.

In Colombia the true *P. pitayumi* appears, and thence spreads over nearly the whole of South America as far as the Argentine Republic and Bolivia. Throughout this wide area birds do not appreciably differ.

As already stated *P. inornata* was first described from a Guatemalan specimen. This is still in our collection, and is the bird now figured. In Guatemala the species is a rare one, and very few specimens have come under our notice; its range is probably restricted to the forest-region of Vera Paz. In Costa Rica and Panama it is much more abundant, and we have received an abundant supply of specimens from those countries; but from the line of the Panama railway it is apparently absent, as M'Leannan never met with it during the years he worked at the ornithology of that district.

3. **Parula insularis.**

Parula insularis, Lawr. Ann. Lyc. N. Y. x. p. 4[1]; Mem. Bost. Soc. N. H. ii. p. 269[2]; Grayson, Pr. Bost. Soc. N. H. xiv. pp. 278[3], 300[4].

Supra sordide cinerea, plaga dorsali oleaginea notata, genis clare cinereis; alis albo bifasciatis; caudæ rectricibus utrinque extimis in pogonio externo albo maculatis; subtus sordide flava, crisso albo; rostri maxilla nigra, mandibula flavida; pedibus corylinis. Long. tota 4·4, alæ 2·1, caudæ 1·85, rostri a rictu 0·55, tarsi 0·75. (Descr. exempli ex Socorro Island, Smiths. Inst. no. 50798. Mus. nostr.)

Hab. Mexico, Tres Marias islands [1 2 3], Socorro island [2 4] (*Grayson*).

This species was discovered by the late Col. A. J. Grayson; and all references relate to his specimens, no other collector having met with it. The bird is allied to *P. pitiayumi* and *P. inornata*: like the former it has two white bands on the wing; but it differs in the more ashy tint of the blue of the upper plumage, and in the abdomen being dull instead of clear yellow *. In both respects it differs from *P. inornata*, which bird also is distinguished by the almost total absence of the white wing-bars.

The Tres-Marias and Socorro birds are said to belong to the same species, only differing in the latter being a little larger. It is common in both localities, and in the Marias may be seen and heard in every tree busily searching amongst the foliage for insects, and often repeating a delicate little song [3]. *P. insularis* has not yet been detected on the mainland; and, strange to say, none of the allied species are found within five or six hundred miles of its home: of these the nearest, *P. nigrilora*, comes from the valley of the Rio Grande, *P. inornata* from Guatemala, and *P. pitiayumi* from Colombia!

The specimen described is not quite adult, and the plumage of the upper and under surfaces probably duller than in the mature bird.

4. **Parula nigrilora.**

Parula nigrilora, Coues, Bull. U.S. Geol. Surv. iv. p. 11[1]; B. Col. Vall. i. p. 207[2]; Sennett, Bull. U.S. Geol. Surv. iv. p. 11[3], v. p. 384[4]; Merrill, Pr. U.S. Nat. Mus. i. p. 123[5].

"♂ subcærulea, dorso medio virenti-flavo, alis albo bifasciatis, palpebris nigris immaculatis, loris lineaque frontali nigerrimis; subtus flava, jugulo aurantiaco, abdomine infimo, hypochondriis crissoque albis. Long. tota 4·5, alæ 2·0–2·2, caudæ 1·8–1·9, rostri a naribus ·38–·4, tarsi ·62–·65, dig. med. ·4." (Coues, *l. s. c.*[2])

Hab. Valley of the Rio Grande, Hidalgo [1 2 3], Lomita [4] (*Sennett*), Fort Brown (*Merrill* [5]).

Though the claim of this bird to Mexican citizenship has not been established, it can hardly be doubted that it is to be found at least in the north-eastern parts of that country and on the south as well as on the north of the Rio Grande, where alone it has been met with up to the present time. Mr. Sennett, the discoverer of this species at Hidalgo

* In the 'History of North-American Birds' (i. p. 207) the abdomen of *P. insularis* is stated to be wholly white. This does not agree either with Mr. Lawrence's description or with the typical specimen before us.

in Texas, gives a full account of its habits as observed by him during two visits to its haunts in the valley of the Rio Grande [3 4]. He describes it as a bird of the forest, where it frequents the tops of the tallest trees, its presence being chiefly detected by its song, which can be heard at a considerable distance, and is easily distinguished from that of any other bird. Mr. Sennett only obtained one nest, which he describes as very peculiar. It was placed in an orchid (? mistletoe) very common on the Rio Grande, which grew at the end of a drooping branch of a brazil-tree some ten feet from the ground. The nest was of simple construction, formed partly of the grey leaves of the orchid, and thrust into its centre from the side; the bottom and sides of the nest were lined with short cotton-like wood-fibres. Dr. Merrill also found a nest [5]; but this was in a bunch of Spanish moss (*Tillandsia*) about eight feet from the ground. An egg obtained by Mr. Sennett he describes as very like that of *P. americana*, of a dull white ground and spotted, chiefly in a zone near the larger end, with spots of lilac and brown.

b. *Cauda immaculata.*

5. **Parula superciliosa.** (Tab. VIII. fig. 2.)

Conirostrum superciliosum, Hartl. Rev. Zool. 1844, p. 215 [1].

Parula superciliosa, Scl. P. Z. S. 1858, p. 299 [2]; 1859, p. 373 [3]; Scl. & Salv. Ibis, 1859, p. 10 [4]; Baird, Rev. Am. B. i. p. 171 [5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 545 [6].

Parula mexicana, Bp. Consp. i. p. 310 [7] (ex Lichtenstein).

Compsothlypis mexicana, Cab. Mus. Hein. i. p. 21 [8].

Supra olivaceo-viridis; capite, genis, alis et cauda cinereis; superciliis elongatis, macula suboculari et subalaribus niveis; subtus læte flava, pectoris lateribus olivaceo tinctis; abdomine postico cinereo, medio cum crisso albis; macula pectorali lunata castanea; rostro nigricante, mandibulæ basi pallida; pedibus corylinis. Long. tota 4·7, alæ 2·5, caudæ 1·85, rostri a rictu 0·6, tarsi 0·7. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Mexico [7 8] (*Deppe, Mus. Berol.*), Orizaba and Moyoapam (*Sumichrast* [6]), Tierra fria (*le Strange*), Talea [3] and La Parada [2] (*Boucard*); Guatemala [1 4], Quezaltenango, Volcan de Fuego, ridge above Chuacus, Santa Barbara (*O. S. & F. D. G.*).

This beautiful species is restricted in its range to the mountainous parts of Southern Mexico and Guatemala, and was first described from specimens sent from the latter country. In Mexico Prof. Sumichrast says it is found in the forests of oaks and pines at elevations of between 6000 and 8200 feet. In Guatemala we found it in similar districts, but chiefly in the oak-forests, especially those of the Volcan de Fuego, where it was common. In the hills surrounding the plain of Salama it was also not uncommonly met with, but at the lower elevation of between 3000 and 4000 feet. So far as we could observe, *P. superciliosa* has quite the habits of other Mniotiltidæ. It frequents the tree-tops, and searches branches and leaves diligently for insects. Of its breeding nothing is as yet known.

6. **Parula gutturalis.** (Tab. VIII. fig. 3.)

Compsothlypis gutturalis, Cab. J. f. Orn. 1860, p. 329 [1].

Parula gutturalis, Baird, Rev. Am. B. i. p. 172 [2]; Lawr. Ann. Lyc. N. Y. ix. p. 93 [3]; v. Frantzius, J. f. Orn. 1869, p. 292 [4]; Salv. P. Z. S. 1870, p. 182 [5].

Supra cinerea, capitis lateribus paulo obscurioribus, dorso medio nigerrimo; subtus gula et pectore aureo-flavis, ventre albido-cinereo, hypochondriis pure cinereis: rostro nigro, pedibus plumbeis. Long. tota 4·8, alæ 2·5, caudæ 1·9, rostri a rictu 0·55, tarsi 0·7. (Descr. maris ex Chiriqui, Panama. Mus. nostr.)

Hab. Costa Rica, Volcan de Irazu (*v. Frantzius* [1 4], *J. Cooper* [3], *Rogers*), Rancho Redondo (*J. Carmiol*); Panama, Volcan de Chiriqui (*Arcé* [5]).

This pretty species was first discovered in the volcano of Irazu by Dr. von Frantzius, who sent to the Berlin Museum the single specimen which formed the type of Dr. Cabanis's description. This specimen seems to have been a female bird, or one in immature plumage, as its describer speaks of the back being faintly spotted with black, an indication only of the peculiar conspicuous black crescentic spot which is so marked a feature in the adult bird.

The species does not appear to be at all a common one, its range being restricted to the higher mountains of Costa Rica and the adjoining volcano of Chiriqui. Here it probably seldom descends below an elevation of 6000 feet, the height at which Dr. von Frantzius found it [4]. It has no near allies, but comes next, perhaps, to *P. superciliosa* of Mexico and Guatemala.

Our figure is taken from a specimen in our collection from Chiriqui.

DENDRŒCA.

Dendroica, G. R. Gray, List Gen. B. App. p. 8 (1842) (type *Motacilla coronata*, Linn.); Baird, Brew. & Ridgw. N. Am. B. i. p. 215.

This genus contains more species than any other of the family, some six and twenty being now included in it; of these, twenty-two are recognized inhabitants of the United States, all but six of which pass the winter months within our border. In addition to these we find two, *D. vieillotti* and *D. decora*, which probably reside throughout the year, making a total of eighteen belonging to Central America and Mexico at one time of the year or another.

The members of *Dendræca* vary much in colour, which, however, serves to group the species into more or less natural sections. Some of the leading characters which are used to define the genus as a whole are:—the more or less depressed bill, which is less acute than in *Helmintherus*, *Helminthophaga*, and *Parula*, and notched near the tip; the rictal bristles are fairly developed; the middle toe is short as compared with the tarsus; the wings much longer than the tail, the first and second primaries being the longest; the tail is nearly even, and always blotched with yellow or white.

The groups into which the genus has been divided in the 'History of North-American

Birds' rest on peculiarities of colour. They seem fairly natural; and we adopt them here.

A. *Cauda macula magna flava in pogonio interno aut flavo late intus marginata.*

1. Dendrœca æstiva.

Motacilla æstiva, Gm. Syst. Nat. i. p. 996[1].
Rhimamphus æstivus, Scl. P. Z. S. 1856, p. 141[2], 1857, p. 202[3]; Cab. J. f. Orn. 1860, p. 326[4].
Dendrœca æstiva, Scl. P. Z. S. 1859, p. 363[5]; Scl. & Salv. Ibis, 1859, p. 11[6]; P. Z. S. 1864, p. 347[7], 1870, p. 836[8], 1879, p. 494[9]; Cassin, Pr. Ac. Phil. 1860, p. 191[10]; Lawr. Ann. Lyc. N. Y. vii. p. 322[11], viii. pp. 174[12], 179[13], ix. pp. 94[14], 200[15]; Mem. Bost. Soc. N. H. ii. p. 269[16]; Bull. U.S. Nat. Mus. no. 4, p. 15[17]; Baird, Rev. Am. B. i. p. 195[18]; Salv. P. Z. S. 1867, p. 136[19], 1870, p. 183[20]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547[21]; v. Frantz. J. f. Orn. 1869, p. 293[22]; Baird, Brew. & Ridgw. N. Am. B. i. p. 222[23]; Coues, B. Col. Vall. i. p. 252[24].

♂ flava, dorso viridescente, gastræo toto castaneo striato; alis et cauda fuscis, extus et intus flavo limbatis; rostro plumbeo, pedibus carneis. Long. tota 4·7, alæ 2·5, caudæ 1·9, rostri a rictu 0·5, tarsi 0·7. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)
♀ mari similis, sed striæ corporis subtus absunt. (Descr. feminæ ex Retalhuleu, Guatemala. Mus. nostr.)

Hab. North America generally[23].—Mexico, Mazatlan (*Grayson*[16]), Colima (*Xantus*[16]), Jalapa and San Andres Tuxtla (*Sallé*[3]), Jalapa (*de Oca*[5]), Orizaba (*Sumichrast*[21]), Merida, Yucatan (*Schott*[15]), Barrio, Chihuitan, Guichicovi, and Santa Efigenia (*Sumichrast*[17]); Guatemala[6], Dueñas, Retalhuleu, San Gerónimo, Tactic, Coban, Cahabon (*O. S. & F. D. G.*); San Salvador, La Libertad (*J. M. Dow*[18]), La Union (*O. S.*); Honduras, San Pedro (*G. M. Whitely*[8]); Nicaragua, Greytown (*Holland*[13]); Costa Rica[4], San José (*v. Frantzius*[22], *Carmiol*[14]), Candelaria Mountains (*v. Frantzius*[22]); Panama, David (*Bridges*[2], *Hicks*[12]), Bugaba, Cordillera del Chucu, Chitra, Calovevora, Calobre, and Santa Fé (*Arcé*[19 20]), line of railway (*M'Leannan*[11 7]), Turbo (*W. S. Wood*[10]).—Colombia[9], Ecuador, Guiana, Trinidad.

The Summer Warbler or Summer Yellow-bird, by which names this species is known in North America, is one of the commonest of Mniotiltidæ, and in the summer season spreads itself throughout the whole North-American continent, and breeds over an area extending from the confines of the Arctic Ocean to the frontier of Mexico, and from the Atlantic to the Pacific Oceans[23]. During the winter months it passes southwards to Mexico, Central America, and the whole of the northern portion of South America from Guiana to Ecuador, and is one of the most abundant of its family in Guatemala and elsewhere at this time of year, ranging from the sea-level to a height of 5000 or 6000 feet. *D. æstiva* has not yet been detected in any of the West-India Islands (except Trinidad), not even as a bird of passage, though many of these islands lie directly in the path the birds of the Eastern States must take when flying to the northern part of South America. We can only suppose that the presence in these islands of a number

of allied forms all related to *D. petechia* (Linn.) renders them undesirable as places of abode to *D. æstiva* during the winter months.

The habits of the species in North America are fully set forth by Brewer [23]; and the vast number of references to its literature and synonymy are elaborated in Dr. Coues's recent work [24].

2. Dendrœca vieilloti.

Dendrœca vieilloti, Cassin, Pr. Ac. Phil. 1860, p. 192 [1]; Salv. Ibis, 1864, p. 380 [2], 1866, p. 192 [3]; Baird, Rev. Am. B. i. p. 203 [4]; Lawr. Ann. Lyc. N. Y. ix. pp. 94 [5], 200 [6]; Mem. Bost. Soc. N. H. ii. p. 270 [7]; v. Frantzius, J. f. Orn. 1869, p. 293 [8]; Baird, Brew. & Ridgw. N. Am. B. i. p. 217 [9].

Sylvicola vieilloti, Finsch, Abh. naturw. Ver. z. Bremen, 1870, p. 329 [10].

Rhimamphus ruficeps, Cab. J. f. Orn. 1860, p. 326 [11].

Dendroica rufigula, Baird, Rev. Am. B. i. p. 204 [12].

Dendroica vieilloti, var. *rufigula,* Baird, Brew. & Ridgw. N. Am. B. i. p. 217 [13].

Dendroica vieilloti, var. *bryanti,* Ridgw. Am. Nat. vii. p. 606 [14]; Baird, Brew. & Ridgw. N. Am. B. i. p. 218 [15].

D. æstivæ similis, sed capite undique castaneo distinguenda. (Descr. exempli ex Tempate, Costa Rica. Mus. nostr.)

Hab. Mexico, Mazatlan [4 10] and Guadalaxara [7] (*Grayson*), Caucun, Yucatan (*Dr. S. Cabot* [4]), Sisal, Progreso and Celestin, Yucatan (*Schott*, *Gaumer*); British Honduras, Belize (*Dr. Berendt*, *Mus. Bost. Soc. N. H.*; *Blancaneaux*), Half-moon Cay (*O. S.* [2 3]); Costa Rica (*Dr. Ellendorf* [11]), San José (*v. Frantzius* [8]), Tempate, Gulf of Nicoya (*Arcé* [3 4]); Panama [1], Veraguas (*Arcé*).—Northern Colombia [1 11 4].

This species has been divided into two or three varieties by American authors, the Western-Mexican and Yucatan bird bearing the name "var. *bryanti*," the Costa-Rica and Panama bird "var. *rufigula*," the original name of *vieilloti* being restricted to the bird of Northern Colombia. The bird is by no means a common one; and it has taken us some years to get together sufficient specimens to enable us to form any opinion as to the distinctness or otherwise of the races that have been set up. So far as we can see, the views of Mr. Ridgway and Prof. Baird are borne out in the main; but some specimens we have are so strictly intermediate in the characters compared that we are obliged to treat our specimens as belonging to one somewhat variable species. According to Mr. Ridgway [9] the strongly pronounced streaks on the flanks of the southern birds is one feature which distinguishes them from their northern representatives; but of five adult birds in our possession that which has fewest streaks is from Northern Yucatan; next comes one from the Gulf of Nicoya, Costa Rica; next a bird from the coast of Belize, and lastly two birds from Veraguas. As regards the extension of the chestnut colour of the throat, the Yucatan bird has the best-defined and most restricted mark; then come the Nicoya

and Belize birds (which hardly differ in this respect), and lastly the two Veraguan specimens.

From this it will be seen that a case for the separate distribution of these birds cannot well be made out; and as they do not occupy distinct areas, the differences pointed out are not sufficiently stable to enable their bearers to be known by different names.

With but few exceptions *D. vieilloti* has hitherto been found at no great distance from the sea. Our own personal acquaintance with it is limited to two occasions:—one, when we met with it on Half-moon Cay, one of the coral islands off the coast of British Honduras; and the other on the outskirts of the port of Punta Arenas in Costa Rica. In habits the bird much resembles *D. æstiva*, and, indeed, is hardly to be distinguished from it when moving restlessly in search of its food.

The records of the occurrence of the species inland are by Grayson, who observed it near Guadalaxara, in Mexico [7], and by von Frantzius, who saw it in May near San José in Costa Rica.

D. vieilloti is no doubt the continental representative of the Antillean *D. petechia*, which, under certain slight modifications, is found in so many of the West-Indian islands, and even in the Galapagos archipelago; but from all these forms it is distinguishable by its throat being chestnut as well as the head. Its head quarters is undoubtedly Central America, as it only just penetrates into the southern continent. An allied species is found in Western Ecuador, which is not separable, so far as we can see, from the Galapagos bird, *D. aureola*, or, for that matter, from the Jamaican *D. petechia* itself.

B. *Cauda intus macula magna alba notata aut late albo marginata.*

a. *Alæ conspicue albo notatæ; remiges ad basin albi.*

3. Dendræca cærulescens.

Motacilla cærulescens, Gm. Syst. Nat. i. p. 960 [1].
Dendroica cærulescens, Baird, Rev. Am. B. i. p. 186 [2]; Baird, Brew. & Ridgw. N. Am. B. i. p. 254 [3]; Gundl. Orn. Cub. p. 64 [4]; Coues, B. Col. Vall. i. p. 241 [5].
Motacilla canadensis, Linn. Syst. Nat. i. p. 336 (nec p. 334) [6].
Dendræca canadensis, Dresser, Ibis, 1865, p. 478 [7]; Salv. Ibis, 1866, p. 205 [8].
Syvicola pannosa, Gosse, B. Jam. p. 162 [9].
Dendræca, sp. inc., Salv. & Scl. Ibis, 1860, p. 273 [10].

♂ supra schistaceo-cærulea, alis et cauda fusco-nigris cæruleo limbatis, speculo alari albo, cauda albo utrinque notata; capitis lateribus, gula et hypochondriis nigerrimis; abdomine medio niveo; rostro nigro, pedibus corylinis. Long. tota 4·7, alæ 2·6, caudæ 2, rostri a rictu 0·5, tarsi 0·7. (Descr. maris ex Washington, U. S., Smiths. Inst. no. 28286. Mus. nostr.)

♀ sordide fusca; alis et cauda concoloribus, subtus medialiter dilutior, speculo alari albido sicut in mare. (Descr. feminæ ex Coban, Guatemala. Mus. nostr.)

Hab. Eastern States of North America from Canada southwards [3 5], Texas [7].—Guatemala, Coban (*O. S. & F. D. G.* [8 10]).—Greater Antilles, Cuba [4], Jamaica [9], &c.

Though a common bird during the winter season in the West Indies, *D. cærulescens* has but a slender claim to a place in the Central-American fauna. The only example from that country that ever came under our notice was killed, in November 1859, near Coban, and is still in our collection. This bird, a female, was at first supposed to be probably the same as *Sylvicola pannosa* [10] of Jamaica; but it was afterwards [8] called *D. canadensis*, both of which names are now known to apply to *D. cærulescens*. The record of the capture of this Central-American specimen has been overlooked by the careful compilers of the literature relating to this species [3 5], all of whom state that the bird is not known in Mexico or Central America.

A full account of *D. cærulescens* in its summer quarters is given by Brewer [3]; and Dr. Coues has brought together its synonymy and the references to its literature with his usual care [5].

b. *Alæ conspicue albo notatæ; remiges unicolores; uropygium flavum.*

a'. *Vertex flavus.*

4. Dendrœca coronata.

Motacilla coronata, Linn. Syst. Nat. i. p. 333 [1].
Sylvia coronata, Licht. Preis-Verz. mex. Vög. p. 2; cf. J. f. Orn. 1863, p. 57 [2].
Rhimamphus coronatus, Scl. P. Z. S. 1856, p. 291 [3].
Dendrœca coronata, Scl. P. Z. S. 1859, p. 363 [4]; Scl. & Salv. Ibis, 1859, p. 11 [5]; P. Z. S. 1864, p. 347 [6], 1870, p. 836 [7]; Baird, Rev. Am. B. i. p. 187 [8]; Lawr. Ann. Lyc. N. Y. viii. p. 6 [9], ix. p. 94 [10]; Bull. U.S. Nat. Mus. no. 4, p. 15 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [12]; v. Frantzius, J. f. Orn. 1869, p. 293 [13]; Dugès, La Nat. i. p. 140 [14]; Baird, Brew. & Ridgw. N. Am. B. i. p. 227 [15]; Gundl. Orn. Cub. p. 65 [16]; Coues, B. Col. Vall. i. p. 278 [17].

Supra cæruleo-cinerea, capitis lateribus nigris, superciliis albis, dorso nigro striato; vertice, pectoris lateribus et uropygio læte flavis; subtus alba, pectore et hypochondriis nigro dense striatis; alis albo bifasciatis; cauda albo utrinque maculata; rostro et pedibus nigris. Long. tota 5, alæ 3, caudæ 2·4, rostri a rictu 0·5, tarsi 0·75. (Descr. exempli ex Panama. Mus. nostr.)

♀ mari similis, sed corpore supra fuscescente nec cinereo et coloribus magis indistinctis distinguenda. (Descr. exempli ex Panama. Mus. nostr.)

Hab. North America, chiefly in the Eastern province, but in the north across the continent to the Pacific [15 17].—Mexico, Guanajuato (*Dugès* [14]), Cordova (*Sallé* [3]), Mirador (*Sartorius* [8]), Jalapa (*de Oca* [4]), Orizaba (*Sumichrast* [12]), Alvarado and Temascaltepec (*Deppe* [2], *Mus. Berol.*), Santa Efigenia, Tehuantepec (*Sumichrast* [11]); British Honduras, Belize (*Blancaneaux*); Guatemala, Escuintla, Dueñas, San Gerónimo, Coban, Cahabon (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [7]); Costa Rica (*v. Frantzius* [13]), Angostura (*Carmiol* [10]); Panama, Volcan de Chiriqui (*Arcé*), line of railway (*M'Leannan* [6 9]).—Antilles, Cuba [16], Jamaica [8], &c.

Dendrœca coronata is a common bird during the autumn and winter months throughout

Mexico and Central America, its southern migration extending to the Isthmus of Panama, but not beyond it, as hitherto we have not met with any instance of its occurrence on the mainland of South America. In many of the West-Indian Islands too it is common at this season; and it also reaches Bermuda. In Mexico its presence has not been noticed on the west coast until we come to the Isthmus of Tehuantepec; but on the east side it is abundant, occurring everywhere, according to Prof. Sumichrast, in the neighbourhood of Orizaba [12]. In Guatemala we also found it in all parts of the country up to an elevation of 5000 or 6000 feet. It frequents the more open districts, where scattered bushes grow, rather than the denser underwood. A bird in summer dress is rarely met with in Central America; and the same may be said of Cuba, where Dr. Gundlach says that the birds begin to moult just before leaving for the north, and that he has never obtained a fully moulted bird in the island. In Jamaica, however, it has been stated, on the good authority of the late Mr. March, that it occasionally breeds; and skins and eggs of it were once sent to the Smithsonian Institution by that gentleman [8].

The United States also afford winter quarters to *D. coronata*. Thence it migrates northwards to breed, and passes this season in the high north, a few pairs remaining in northern New England and Nova Scotia. Of its nesting-habits not much is known. Brewer describes a nest from Nova Scotia, which was taken from a horizontal branch of a tree, as composed of fine stalks of grass, slender twigs, and roots, the latter forming the rim; the lining was of soft grasses, downy feathers, and fine hair. Nests taken by M'Farlane on the Anderson River were generally built in low spruce-firs or on the ground. The eggs are white, sometimes with a bluish shade, and blotched and spotted with several shades of brown, reddish brown, and purple.

A very full account of the nomenclature of this bird will be found in Dr. Coues's work [17].

5. **Dendrœca auduboni.**

Sylvia auduboni, Towns. Journ. Ac. Phil. vii. p. 191 [1].

Dendrœca auduboni, Scl. P. Z. S. 1858, p. 298 [2], 1860, p. 250 [3], 1864, p. 172 [4]; Scl. & Salv. Ibis, 1860, p. 273 [5]; Baird, Rev. Am. B. i. p. 188 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [7]; Lawr. Mem. Bost. Soc. N. H. ii. p. 269 [8]; Baird, Brew. & Ridgw. N. Am. B. i. p. 229 [9]; Coues, B. Col. Vall. i. p. 271 [10].

Similis *D. coronatæ*, sed gula flava, plaga alba alarum magna, capitis lateribus cinereis nec nigris, maculis ciliaribus nec superciliis albis distinguenda. (Descr. exempli ex Mexico. Mus. nostr.)

Hab. North America, Rocky Mountains to the Pacific [9 10].—Mexico, Mazatlan (*Bischoff* [8]), Tepic (*Grayson* [8]), Tonila and Jalisco (*Xantus* [8]), valley of Mexico (*White* [4]), Tierra fria (*le Strange*), Orizaba (*Sallé* [3]), Tecamaluca near Orizaba (*Sumichrast* [7]), Oaxaca (*Deppe, Mus. Ber.*), La Parada (*Boucard* [2]); Guatemala, ridge above Totonicapam and San Gerónimo [5] (*O. S.*).

Like *D. coronata*, this species visits Mexico and Central America in winter, but, being a western bird, occupies a rather different area during that season. As in similar cases the western form hangs more strictly to the Pacific side of Mexico, and does not migrate nearly so far south as its eastern congener. Not uncommon in collections from Southern Mexico, *D. auduboni* hardly penetrates beyond that district; for we only twice met with it in Guatemala:—once in November in company with *D. coronata* at San Gerónimo, 3000 feet above the sea, where both species were feeding on the ground together; the second time in February, when a solitary bird was shot in an open glade of the pine-forest which clothes the mountains above Totonicapam, 10,000 feet above the sea. Both these birds are in winter dress; but birds in summer plumage occur in Mexico[3]. In the north Andubon's Warbler is well known throughout the Rocky Mountains; and there seems good reason to believe that it breeds in most of the higher ranges from Arizona to British Columbia. A nest taken in Vancouver's Island by the late Mr. Hepburn is described[9] as built outwardly of coarse strips of bark, long leaves of dry grass, and stalks of plants mingled with finer grasses, pieces of cotton cloth and other materials, and inwardly of fine grasses, feathers, lichens, mosses, fine roots, &c. all felted together and lined with fur and feathers. The eggs are pure white, spotted chiefly at the larger end with red markings.

Dr. Coues's account of this species is very full, both as to synonymy and as to the range and habits of the bird[10].

b'. *Vertex haud flavo notatus.*

6. Dendrœca maculosa.

Motacilla maculosa, Gm. Syst. Nat. i. p. 984[1].

Sylvicola maculosa, Bryant, Pr. Bost. Soc. N. H. vii. p. 110[2].

Dendrœca maculosa, Scl. & Salv. Ibis, 1859, p. 11[3]; 1864, p. 347[4]; Scl. P. Z. S. 1859, pp. 363[5], 374[6]; 1862, p. 19[7]; Lawr. Ann. Lyc. N. Y. vii. p. 322[8]; Bull. U.S. Nat. Mus. no. 4, p. 16[9]; Baird, Rev. Am. B. i. p. 206[10]; Baird, Brew. & Ridgw. N. Am. B. i. p. 232[11]; Gundl. Orn. Cub. p. 66[12]; Coues, B. Col. Vall. i. p. 290[13].

Capitis lateribus, dorso, tectricibus supracaudalibus et cauda nigerrimis; superciliis, plaga alari magna et maculis caudæ utrinque albis; capite summo et alarum marginibus cinereis; uropygio et corpore subtus flavis, pectore et hypochondriis maculis nigris magnis notatis; crisso albo; rostro et pedibus nigris. Long. tota 4·7, alæ 2·5, caudæ 2, rostri a rictu 0·5, tarsi 0·7. (Descr. maris ex Panama. Mus. nostr.)

♀ a mari differt dorso olivaceo, superciliis albis et maculis corporis subtus absentibus. (Descr. feminæ ex Panama. Mus. nostr.)

Hab. North America, Eastern Province[11 13].—Mexico, Jalapa (*de Oca*[5]), Playa Vicente (*Boucard*[6]), Cosamaloapam (*Boucard*[7]), Santa Efigenia, Tehuantepec (*Sumichrast*[9]), Izalam, Yucatan (*Gaumer*); British Honduras, Belize (*Blancaneaux*); Guatemala[3], Retalhuleu, Dueñas, Coban, Choctum (*O. S. & F. D. G.*); Panama, Lion Hill (*M'Leannan*[4 8]).—Cuba[12]; Bahama Islands[2].

The distribution of this species in winter in Central America is peculiar. It has been found in the southern provinces of Mexico, Vera Cruz, Oaxaca, and Tehuantepec, and immediately to the southward over a wide district of Guatemala, extending across the country; but beyond this we lose all trace of it until we come to the State of Panama, where it occurs not unfrequently on the line of the Panama railway. This is its most southern limit. In Cuba it is of rare occurrence, appearing sometimes in the month of April on its passage northwards [12]. It also occurs in the Bahamas [2], but not in any other of the West-India Islands.

In summer it spreads over the Eastern States northwards to Labrador, Hudson's Bay, Great Slave Lake, &c., and westwards to the Rocky Mountains of Colorado, breeding in the New England States and northwards [13].

Its song is described as clear and sweetly modulated, surpassing in quality those of most of the family. It frequents low woods, searching for its food amongst the branches and running up and down the trunks of trees in pursuit of insects and their larvæ. It also catches insects on the wing, and takes them from open flowers [11]. The nest is usually placed in a fir tree a few feet from the ground; it is described as a rather loose shallow structure, made almost entirely of slender grasses, fine stems of plants, a little moss or spruce-twigs, and lined with fine black roots of herbaceous plants. The eggs are cream-colour or ashy white, sparingly spotted with lilac and umber [11].

Full references are given by Dr. Coues [13].

c. *Uropygium haud flavum.*

c'. *Gula alba.*

7. **Dendræca cærulea.**

Sylvia cærulea, Wils. Am. Orn. ii. p. 141, t. 17. f. 5 [1]; Licht. Preis-Verz. mex. Vög. p. 2 [2] (cf. J. f. Orn. 1863, p. 57).

Dendræca cærulea, Lawr. Ann. Lyc. N. Y. vii. p. 322 [3]; ix. p. 200 [4]; Baird, Rev. Am. B. i. p. 191 [5]; Scl. & Salv. P. Z. S. 1864, p. 347 [6]; 1870, p. 836 [7]; 1879, pp. 494 [8], 594 [9]; Salv. P. Z. S. 1870, p. 183 [10]; Baird, Brew. & Ridgw. N. Am. B. i. p. 235 [11]; Gundl. Orn. Cub. p. 65 [12]; Coues, B. Col. Vall. i. p. 267 [13]; Tacz. P. Z. S. 1874, p. 508 [14]; Allen, Bull. Nutt. Orn. Club, iv. p. 25 [15].

Cærulea, dorso medio et verticis lateribus indistincte nigro striatis; alis albo bifasciatis; cauda utrinque albo notata; subtus pure alba, hypochondriis nigro striatis; rostro nigricante; pedibus corylinis. Long. tota 4·4, alæ 2·5, caudæ 1·7, rostri a rictu 0·5, tarsi 0·65. (Descr. maris ex Panama. Mus. nostr.)

♀ virescens, subtus sordide albicans. (Descr. feminæ ex Panama. Mus. nostr.)

Hab. Eastern North America, to the Rocky Mountains, Canada [11 13].—Mexico (*Deppe* [2]), Merida, Yucatan (*Schott* [4]); Guatemala (*Mus. G. N. Lawrence* [5]), Coban (fide *Verreaux* [5]); Honduras, San Pedro (*G. M. Whitely* [7]); Costa Rica, Irazu (*Rogers*); Panama, Calovevora (*Arcé* [10]), Lion Hill (*M'Leannan* [3 6]).—Colombia [8]; Ecuador; Peru [14]; Bolivia [9]; Cuba [12].

With the exception of Yucatan, where *D. cærulea* appears to be a regular winter visitant, this species can hardly be said to touch Mexico in its southern migration, the only

record of its appearance in that country being Lichtenstein's, on the authority of Deppe's specimens captured some fifty years ago. In Guatemala we never met with it; and the only notices we have of its occurrence in that country are those given by Prof. Baird in his 'Review of American Birds'[5]. Though obtained at San Pedro, in Honduras, by Whitely, this place would appear to be still out of the usual line of its winter migration; for it has hardly been noticed in either Nicaragua or Costa Rica, and it is only in the State of Panama that we find it in any numbers. Here it would appear to be not uncommon. In the southern continent its range is very wide, and skins of it may not unfrequently be seen in collections made as far south as Bolivia. In Cuba its appearance is casual and chiefly confined to the north coast[12]. The line of migration of *D. cærulea* seems to pass almost directly from the United States to Panama, a few individuals being tempted to the promontory of Yucatan and to a few points on the east coast of Central America. Striking the southern continent in the State of Panama the migrants disperse, spreading over the countries lying between Colombia and Bolivia.

In the north it has a rather wide range, being most abundant in the Mississippi valley; thence it spreads to the Rocky Mountains, to the Atlantic States, though in small numbers, and northwards to Canada west[13].

The species does not appear to be well known to American ornithologists generally; and Brewer[11], in compiling his account of the bird, quotes no later authority than Audubon when describing its nesting-habits and its eggs. According to this writer, the nest is placed in the fork of a low tree, and is composed of fibres and stalks with slender roots intermingled, and lined with fine dry fibres of Spanish moss (*Tillandsia*). The eggs, five in number, are pure white, with a few reddish spots at the larger end. More recently Mr. Allen[15] has been enabled to describe the nest and eggs of this species; and his account differs somewhat from Audubon's, the eggs being creamy white, thickly covered with blotches of reddish brown.

8. **Dendrœca pennsylvanica.**

Motacilla pennsylvanica, Linn. Syst. Nat. i. p. 333[1].

Dendrœca pennsylvanica, Scl. & Salv. Ibis, 1860, p. 273[2]; P. Z. S. 1864, p. 347[3]; 1870, p. 836[4]; Lawr. Ann. Lyc. N. Y. vii. p. 322[5], ix. pp. 94[6], 200[7]; Baird, Rev. Am. B. i. p. 191[8]; Salv. P. Z. S. 1867, p. 136[9]; 1870, p. 182[10]; v. Frantz. J. f. Orn. 1869, p. 293[11]; Baird, Brew. & Ridgw. N. Am. B. i. p. 245[12]; Coues, B. Col. Vall. i. p. 244[13]; Sennett, Bull. U. S. Geol. Surv. v. p. 387[14].

Motacilla icterocephala, Linn. Syst. Nat. i. p. 334[15].

Sylvicola icterocephala, Bryant, Pr. Bost. Soc. N. H. vii. p. 110[16].

Dendrœca icterocephala, Scl. P. Z. S. 1859, pp. 363[17], 374[18]; Cab. J. f. Orn. 1860, p. 328[19].

Supra nigra, dorsi plumis, alis et cauda flavescenti-cinereo limbatis; capite summo læte flavo; loris, superciliis et genis anticis nigris; regione parotica, cervicis lateribus et corpore toto subtus albis, hypochondriis læte castaneis; alis flavido-albo bifasciatis; rectricibus externis utrinque tribus intus plaga alba gradatim latius notatis; rostro nigro; pedibus corylinis. Long. tota 4·5, alæ 2·6, caudæ 2·0, rostri a rictu 0·5, tarsi 0·65. (Descr. maris ex Panama. Mus. nostr.)

♀ supra læte olivacea fere immaculata, subtus alba genis cinereis. (Descr. feminæ ex Panama. Mus. nostr.)

Hab. North America, Eastern States [12 13], Texas [14].—Mexico, Jalapa (*de Oca* [17]), Playa Vicente (*Boucard* [18]), Merida, Yucatan (*Schott* [7]); Guatemala (*Delattre* [19]), Dueñas, Coban [2], Choctum, Telemans (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [4]); Costa Rica [19] (*v. Frantzius* [11]), Grecia and Barranca (*Carmiol* [6]), Angostura (*Carmiol*); Panama, Volcan de Chiriqui, Chitra, Calovevora (*Arcé* [10]), Santa Fé (*Arcé* [9]), Lion Hill (*M'Leannan* [5 3]).—Bahama Islands [16].

Very little is known of *Dendræca pennsylvanica* in Mexico; for though both de Oca and Boucard found it in the State of Vera Cruz [17 18], Prof. Sumichrast omits to mention it, nor do we find its name included in the lists of the birds of Western Mexico. In Guatemala it is not a common species in the winter months, though we found it dispersed over a wide area; but in Costa Rica and the adjoining State of Panama it is abundant, judging from the number of specimens that have been sent us from there. Here a large proportion of the emigrants from the north must pass the winter; and in seeking these countries from the Eastern States they omit to stop on any of the West-India Islands on their route, with the exception of the Bahamas, where Bryant found this bird [16]. The line of the Panama railway seems to be the limit of its wanderings, as we have no record of its passing into the southern continent.

In the north its range extends almost exclusively to the Eastern States and Canada [13], and it breeds abundantly in New England [12]. Its nest is described as being constructed of strips of red-cedar bark, well lined with coarse hair, and placed in the fork of a low bush four or five feet from the ground. The eggs are white, blotched and dotted over the entire surface with profuse markings of lavender and dark purple intermixed with lighter spots of reddish brown [12].

For full references to the literature of the species Dr. Coues's work had best be consulted [13].

9. **Dendræca castanea.**

Sylvia castanea, Wils. Am. Orn. ii. p. 97, t. 14. f. 4 [1].

Dendræca castanea, Scl. & Salv. Ibis, 1859, p. 11 [2]; P. Z. S. 1864, p. 347 [3]; 1879, p. 494 [4]; Cassin, Pr. Ac. Phil. 1860, p. 193 [5]; Lawr. Ann. Lyc. N. Y. vii. p. 322 [6]; Bull. U. S. Nat. Mus. no. 4, p. 15 [7]; Baird, Rev. Am. B. i. p. 189 [8]; Wyatt, Ibis, 1871, p. 322 [9]; Baird, Brew. & Ridgw. N. Am. B. i. p. 251 [10]; Coues, B. Col. Vall. i. p. 243 [11].

Supra dorso medio nigro, plumis singulis pallido badio limbatis; uropygio cinereo, tectricibus supracaudalibus in medio nigris; capite summo, gula tota et hypochondriis læte badiis; fronte et capitis lateribus nigris; alis et cauda fusco-nigris, cinereo limbatis, illis albo bifasciatis, hac in pogonio rectricum duarum externarum interne plaga alba notata; subtus abdomine medio albo vix badio tincto; rostro corneo, pedibus corylinis. Long. tota 4·6, alæ 3, caudæ 2·2, rostri a rictu 0·6, tarsi 0·7. (Descr. maris ex Veraguas in Statu Panamensi. Mus. nostr.)

♀ supra olivacea, dorso vix fusco striato; superciliis, genis et corpore subtus olivaceo-albis. (Descr. feminæ ex Panama. Mus. nostr.)

Hab. North America, Eastern Province, north to Hudson's Bay [10 11].—Mexico, Tehuan-

tepec city (*Sumichrast* [7]); Guatemala (*Skinner* [2]); Panama, line of railway (*M'Leannan* [3 6]), Chepo (*Arcé*), Turbo, Truando (*A. Schott* [5 8]).—Colombia [4 9].

Of the Bay-breasted Warbler little is known in either Mexico or Central America except in the Colombian State of Panama, where it would appear to be not uncommon during the winter months. In Mexico the sole record of its occurrence is Professor Sumichrast's [7]; and in Guatemala it is equally rare; for though we were able to include it in the list of the birds of that country [2], we have never since seen a single specimen from there amongst the thousands of bird-skins we have examined. In Costa Rica it has not yet been detected at all. In its migration to and from its winter quarters, *D. castanea*, like several of its congeners of the Eastern States, passes the West Indies without stopping, barely touches Mexico or Guatemala, but makes straight for the Isthmus of Panama and the north-western parts of South America. In the latter district it is not uncommon; and Messrs. Wyatt and Salmon both met with it, the former at Naranjo, in the Magdalena valley, and the latter at Remedios, in the adjoining Cauca valley.

For its summer quarters *D. castanea* makes for Northern New England, and thence spreads to the shores of Hudson's Bay [11], in which district it breeds. Southward of this it is known as a bird of passage as far west as the great plains.

The nest is described by Brewer [10] as large for the size of the bird, and composed outwardly of fine twigs mingled with long hanging mosses; the lining neatly and smoothly made of black fibrous roots, seed-stalks of mosses, and a few hairs. The eggs he describes as bluish green, thickly spotted with brown, and generally with a ring of confluent blotches of brown and lilac round the larger end.

d'. *Gula flava aut aurantiaca.*

10. **Dendrœca blackburniæ.**

Motacilla blackburniæ, Gm. Syst. Nat. i. p. 977 [1].

Rhimamphus blackburniæ, Scl. P. Z. S. 1855, p. 143 [2]; 1858, p. 64 [3].

Dendrœca blackburniæ, Scl. P. Z. S. 1859, p. 363 [4]; Scl. & Salv. Ibis, 1859, p. 11 [5]; Cab. J. f. Orn. 1860, p. 328 [6]; Lawr. Ann. Lyc. N. Y. vii. p. 468 [7], ix. p. 94 [8]; Bull. U. S. Nat. Mus. no. 4. p. 15 [9]; Baird, Rev. Am. B. i. p. 189 [10]; Salv. P. Z. S. 1867, p. 136 [11]; 1870, p. 183 [12]; Ibis, 1872, p. 314 [13]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [14]; v. Frantzius, J. f. Orn. 1869, p. 293 [15]; Baird, Brew. & Ridgw. N. Am. B. i. p. 237 [16]; Merrill, Pr. U.S. Nat. Mus. i. p. 123 [17]; Coues, B. Col. Vall. i. p. 284 [18]; Tacz. P. Z. S. 1874, p. 508 [19].

Sylvicola blackburniæ, Sw. Phil. Mag. new ser. i. p. 434 [20]; Bryant, Pr. Bost. Soc. N. H. vii. p. 110 [21].

Supra nigra, uropygii plumis fusco vix limbatis; alis et cauda fusco-nigris cinereo limbatis, illis albo bifasciatis, hujus rectricibus tribus externis intus plaga alba gradatim latius notatis; capite summo, superciliis, macula suboculari et gutture toto læte aurantiacis; loris et genis nigerrimis, abdomine et crisso albis; hypochondriis

nigro striatis; rostro corneo, pedibus corylinis. Long. tota 4·6, alæ 2·6, caudæ 1·8, rostri a rictu 0·55, tarsi 0·65. (Descr. maris ex Jalapa, Mexico. Mus. nostr.)

♀ supra nigra olivaceo striata, coloribus sicut in mare distributis sed colore aurantiaco multo flavidiore et plumis nigris undique flavescenti-olivaceo limbatis. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America, Eastern States [16], westward to Utah and New Mexico [18], Texas [17]. —Mexico, Vera Cruz (*Bullock* [20]), Jalapa (*de Oca* [4]), Orizaba (*Sumichrast* [14]), Tehuantepec city (*Sumichrast* [9]); Guatemala [5], Dueñas, Coban, and Choctum (*O. S. & F. D. G.*); Nicaragua, Chontales (*Belt* [13]); Costa Rica [6], San José, Atirro, and Barranca (*v. Frantzius* [15], *Carmiol* [8]); Panama, Volcan de Chiriqui, Cordillera del Chucu, Chitra, Calovevora, Calobre (*Arcé* [12]), Santa Fé (*Arcé* [11]), line of railway (*M'Leannan* [7]).—Colombia [2]; Ecuador [3]; Peru [19]; Bahama Islands [21].

Though the Blackburnian Warbler has been traced to Utah and even to New Mexico during its spring migration [18], it cannot be considered otherwise than an eastern bird during its summer residence in the North-American continent. Its northward range extends to the British provinces, and even to Greenland. In passing south in its autumn migration it takes a rather peculiar line, missing the West Indies entirely, with the exception of the Bahama Islands. In Mexico it is only known in the southern provinces, and only on the Pacific side of that country in the vicinity of Tehuantepec [9]. In Guatemala and elsewhere in Central America it is generally distributed and common throughout the winter months; and it appears to be equally abundant in the north-western portions of South America as far as the central provinces of Peru [19]. In Guatemala its range in altitude is considerable, extending from 1000 to 5000 or 6000 feet. In Colombia, according Mr. Wyatt, who observed it in the Magdalena valley, it keeps to the oak-forests below the Paramo, seldom descending to a lower elevation than 5000 feet [16]. It is frequently represented in Bogota collections.

Though Dr. Coues speaks of this bird as a well-known and abundant species in the United States [18], the account of it given by Brewer [16] is chiefly compiled from the observations of Audubon and his contemporaries. He also describes the nest and eggs, but admits that their authenticity is not free from doubt.

Though *D. blackburniæ* can always be readily distinguished from any other of its family, the variation of the plumage, due to season, sex, and age, is considerable. Full-plumaged males are more often obtained in the winter at the southern end of its range than in Mexico or Guatemala, where immature or winter-plumage birds prevail.

11. **Dendrœca dominica.**

Motacilla dominica, Linn. Syst. Nat. i. p. 334[1].

Dendrœca dominica, Baird, Rev. Am. B. i. p. 209 [2]; Lawr. Ann. Lyc. N. Y. ix. p. 200 [3]; Mem. Bost. Soc. N. H. ii. p. 270 [4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 240 [6]; Gundl. Orn. Cub. p. 67 [7]; Coues, B. Col. Vall. i. p. 247 [8].

Dendrœca dominica, var. *albilora,* Lawr. Bull. U.S. Nat. Mus. no. 4, p. 16 [9].

Motacilla superciliosa, Bodd. Tabl. Pl. Enl. p. 43 [10].

Dendræca superciliosa, Scl. P. Z. S. 1859, pp. 363[11], 374[12]; 1862, p. 368[13]; Scl. & Salv. Ibis, 1860, p. 274[14]; Dresser, Ibis, 1865, p. 478[15].
Motacilla flavicollis, Gm. Syst. Nat. i. p. 959[16].
Sylvia flavicollis, Sw. Phil. Mag. new ser. i. p. 434[17].
Motacilla pensilis, Gm. Syst. Nat. i. p. 960[18].
Sylvicola pensilis, Gosse, B. Jam. p. 156[19]; Sallé, P. Z. S. 1857, p. 231[20].
Rhimamphus pensilis, Scl. P. Z. S. 1856, p. 291[21].
Dendræca pensilis, Scl. P. Z. S. 1858, p. 295[22].

Supra cinerea, alis et cauda fusco-nigris cinereo limbatis, illis albo bifasciatis, hujus rectricibus tribus utrinque externis plaga alba gradatim latius notatis; pileo, capitis et cervicis lateribus nigris, plumis ad nucham cinereo limbatis; gutture toto læte flavo; superciliis (interdum flavo tinctis), macula suboculari et abdomine toto albis, hypochondriis nigro striatis; rostro et pedibus nigricantibus. Long. tota 4·5, alæ 2·5, caudæ 1·9, rostri a rictu 0·7, tarsi 0·7. (Descr. exempl. ex Totonicapam, Guatemala. Mus. nostr.)

♀ mari persimilis, sed coloribus paulo obscurioribus.

Hab. North America, Eastern States[6 8], Texas[15].—Mexico (*Sallé*[21]), Tepic (*Grayson*[4]), Colima (*Xantus*[2 4]), Coahuayana (*Xantus*[4]), Tamaulipas (*Couch*[6]), Vera Cruz (*Bullock*[17]), Jalapa (*de Oca*[11]), Orizaba (*Sumichrast*[5]), Oaxaca (*Boucard*[12]), Gineta Mountains, Chiapas (*Sumichrast*[9]), Merida, Yucatan (*Schott*[3]), Valladolid, Yucatan (*Gaumer*); British Honduras, Belize (*Blancaneaux*); Guatemala, Totonicapam, Dueñas[14], Choctum (*O. S. & F. D. G.*).—Antilles, Cuba[7], San Domingo[18 20], Jamaica[1 19], &c.

Mr. Ridgway, in the 'History of North-American Birds'[6], divided *Dendræca dominica* into two races, distinguishable by the colour of the lores, the bird of the Atlantic States and the Greater Antilles having the lores yellow, that of the middle region of North America, Mexico, Yucatan, and Guatemala having the same part white. The difference at most is very slight; and its value is further diminished by the fact of Guatemalan specimens having a slight yellowish tinge on the lores, breaking down the chief point of distinction between Mr. Ridgway's races.

The limit of the southern migration of *D. dominica*, so far as is at present known, is Guatemala, where, however, it is a common bird during the winter, and is found at various elevations between 1200 feet and 9000 or 10,000 feet. It does not, so far as we know, stop in the country during the whole year, as has been stated to be the case with the Jamaican bird[6]. But it arrives early, and abounds near Dueñas from the middle of August till the following spring.

In its summer quarters this species spreads over the whole of the Eastern States as far north as Washington and New York, the race with white lores extending further west to the Mississippi region up to Lake Erie. It doubtless breeds throughout this district; but its nesting-habits seem but imperfectly known, the accounts of Nuttall and Audubon, as given by Brewer[6], not agreeing as to its mode of nidification, and more recent information being very scanty on this subject.

The references, however, to the literature of the species are very numerous, occupying a closely-printed page and a half of Dr. Coues's work[8].

12. **Dendrœca decora.** (Tab. X. fig. 1.)

Dendrœca graciæ, var. *decora,* Ridgw. Am. Nat. vii. p. 608[1]; Baird, Brew. & Ridgw. N. Am. B. i. p. 240[2]; Coues, B. Col. Vall. i. p. 292[3].

Dendrœca graciæ, Salv. Ibis, 1873, p. 428[4]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 16[5].

Dendrœca decora, Salv. Cat. Strickl. Coll. p. 92[6].

Supra cinerea, pilei antici plumis in medio nigris; alis et cauda fusco-nigris cinereo limbatis, illis vix pallide cinereo bifasciatis, hujus rectricibus tribus utrinque externis plaga alba gradatim latius notatis; superciliis a naribus, ciliis ipsis, macula suboculari et gutture toto læte flavis; corpore reliquo lactescenti-albo, hypochondriis cinerascentibus vix nigro striatis; rostro nigricante, pedibus corylinis. Long. tota 4, alæ 2·2, caudæ 1·8, rostri a rictu 0·55, tarsi 0·6. (Descr. exempl. ex Guatemala. Mus. Acad. Cantabr.)

Hab. Mexico, near Zapotitlan (*Sumichrast*[5]); British Honduras, Belize (*C. Wood*[13]), Guatemala (*Constancia*[6], *Mus. Soc. Econ.*[4]).

Dendrœca decora is a near ally of *D. graciæ*, a species of New Mexico and Arizona discovered some years ago by Dr. Coues. The differences observable between the two birds are slight, and have been treated by American ornithologists as indicating that their possessors are varieties only one of another and not distinct species. This may prove to be the case; but at present no intermediate links have been discovered blending the two races, nor do we think it very probable that such now exist; and for this reason we prefer to treat *D. decora* as distinct.

Though *D. graciæ* has been fully described by the eloquent pen of Dr. Coues[3], nothing is known of its relative beyond the bare record of the capture of specimens. Its presence in Central America was first noticed by Mr. Ridgway, who described Belize specimens obtained by Mr. C. Wood[1]. About the same time we discovered a stuffed specimen in the Museum of the Sociedad Economica de Guatemala[4]. But long before (in 1848) these notes were published, the late Señor J. Constancia had sent to Strickland a specimen from Guatemala, which is still in his collection at Cambridge, and is the bird from which our figure has been drawn.

e'. *Gula nigra aut nigro mixta.*

13. **Dendrœca nigrescens.**

Sylvia nigrescens, Towns. Journ. Ac. Phil. vii. p. 191[1].

Sylvicola nigrescens, Bp. Consp. i. p. 308[2]; Dugès, La Nat. i. p. 141[3].

Dendrœca nigrescens, Scl. P. Z. S. 1858, p. 298[4]; 1859, p. 374[5]; Baird, Rev. Am. B. i. p. 186[6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547[7]; Baird, Brew. & Ridg. N. Am. B. i. p. 258[8]; Coues, B. Col. Vall. i. p. 263[9].

Supra cinerea, interscapulii et uropygii plumis in medio nigris, capite cum gula nigris; loris flavis, superciliis posticis, stria utrinque gulæ et abdomine medio albis, hypochondriis nigro striatis; alis et cauda nigricantibus cinereo limbatis, illis albo bifasciatis, hujus rectricibus utrinque tribus externis parte apicali

gradatim latius albis; rostro et pedibus nigricantibus. Long. tota 4·8, alæ 2·5, caudæ 2·2, rostri a rictu 0·5, tarsi 0·75. (Descr. maris ex Parada, Mexico. Mus. nostr.)

♀ mari similis, sed coloribus magis fuscescentibus gula quoque alba distinguenda. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. North America, Rocky Mountains to the Pacific.—Mexico, Guanajuato (*Dugès* [3]), Tierra fria (*le Strange*), Orizaba (*Sumichrast* [8]), Real Ariba (*Deppe, Mus. Berol.*), La Parada (*Boucard* [4]), Oaxaca (*Boucard* [5], *Fenochio*).

This species of western North America spreads southwards in winter over Central Mexico as far as the State of Oaxaca, beyond which it has not yet been noticed. It would seem to be restricted to the higher districts, specimens occurring in collections from the tablelands of Mexico and the higher mountain-ranges of Oaxaca up to 10,000 feet; but in Orizaba it is rare, according to Prof. Sumichrast; and it was not included in any of M. Sallé's earlier collections, nor yet in those of de Oca.

The first specimens of *D. nigrescens* that reached Europe were doubtless those (still in the Berlin Museum) obtained at Real Ariba in Mexico by Deppe. But the first description of it was by Townsend [1], who found the species some years afterwards in the forests of the Columbia river, where it was abundant. Since then it has been observed in California and the Rocky Mountains by many collectors, and was rediscovered in Mexico by M. Boucard in 1858.

It probably breeds in the Rocky Mountains from Arizona northwards to the limits of its range. Nuttall describes its nest as made of fibrous green moss, and as suspended between two small twigs in the upper branches of an oak [9].

Dr. Coues gives a good epitome of the habits of *D. nigrescens*, drawn partly from his own observations of it at Fort Whipple, Arizona [9].

14. Dendrœca virens.

Motacilla virens, Gm. Syst. Nat. i. p. 985 [1].
Sylvia virens, Licht. Preis-Verz. mex. Vög. p. 2 [2] (cf. J. f. Orn. 1863, p. 57).
Rhimamphus virens, Scl. P. Z. S. 1856, p. 291 [3].
Dendrœca virens, Scl. & Salv. Ibis, 1859, p. 11 [4]; P. Z. S. 1864, p. 347 [5]; Scl. P. Z. S. 1859, pp. 363 [6], 373 [7]; Lawr. Ann. Lyc. N. Y. vii. p. 293 [8], ix. p. 94 [9]; Bull. U.S. Nat. Mus. no. 4, p. 15 [10]; Baird, Rev. Am. B. i. p. 182 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546 [12]; v. Frantzius, J. f. Orn. 1869, p. 293 [13]; Salv. P. Z. S. 1870, p. 182 [14]; Baird, Brew. & Ridgw. N.-Am. B. i. p. 261 [15]; Gundl. Orn. Cub. p. 64 [16]; Merrill, Pr. U.S. Nat. Mus. i. p. 124 [17]; Coues, B. Col. Vall. i. p. 240 [18]; Newton, P. Z. S. 1879, p. 552 [19].

Supra olivacea, maculis celatis nigris notata, capitis lateribus læte flavis, stria per oculos ducta dorso concolori, gula tota cum pectoris lateribus nigris, hypochondriis nigro striatis, corporis subtus reliquo albo; alis et cauda nigris cinereo limbatis, illis albo bifasciatis, hujus rectricibus tribus externis pro majore parte albo gradatim latius notatis; rostro et pedibus nigricantibus. Long. tota 4·4, alæ 2·5, caudæ 2·0, rostri a rictu 0·6, tarsi 0·7. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

♀ mari similis, gula et pectoris lateribus albis nec nigris distinguenda.

Hab. North America, Eastern Province [15 18], Canada, Texas [17].—Mexico (*Sallé* [3]), Lagunas, Alvarado, and Cuernavaca (*Deppe*, *Mus. Berol.*), State of Vera Cruz (*Sumichrast* [12]), Jalapa (*de Oca* [6]), Talea and Playa Vicente (*Boucard* [7]), Mirador (*Sartorius* [11]), Santa Efigenia, Tehuantepec (*Sumichrast* [10]); Guatemala, Dueñas [4], San Gerónimo, Tactic, Coban (*O. S. & F. D. G.*); Costa Rica, Grecia, Barranca, and Rancho Redondo (*Carmiol* [9]), Candelaria Mountains (*v. Frantzius* [13]); Panama, Volcan de Chiriqui (*Arcé* [14]), Lion Hill (*M'Leannan* [5 8]).—Cuba [16]; Jamaica [19].

In Guatemala *Dendræca virens* is one of the commonest species of Mniotiltidæ during the winter months, but is more abundant in Vera Paz and on the eastern side of the country than about Dueñas, where its place is to some extent, though not entirely, taken by *D. townsendi*. It frequents, like the rest of its family, the second-growth woods, and may always be found during the period of its stay in the outskirts of plantations, its only note during this season being a sharp call. In Mexico it would appear to be equally abundant in winter, as all cellectors seem to have met with it, and Prof. Sumichrast speaks of it as found everywhere in the State of Vera Cruz. On the Pacific side of the country it only appears in the neighbourhood of Tehuantepec. In Costa Rica it is also common in winter, but in the State of Panama perhaps less so, though several specimens have been sent us from the line of railway. In Cuba it is rare, Dr. Gundlach having seen it but few times [16]. In Jamaica it was unknown until quite recently, when Mr. E. Newton discovered it in the island and sent home several specimens [19].

In North America *D. virens* is essentially a bird of the Eastern Province, extending westwards to the edge of the plains and northwards to the temperate portions of the British possessions. Beyond these limits it has been known to stray to Greenland, and even to Heligoland [18]! It breeds in the northern portion of its range and in the New-England States. The nest is described by Brewer [15] as a small, snug, compact structure built on a base of fine strips of bark, bits of leaves, and stems of plants; the lining consists of fine down and silky stems of plants. The eggs have a white or purplish-white ground, and are blotched and dotted with markings of reddish and purplish brown diffused over the whole surface, but especially at the larger end.

15. **Dendræca occidentalis.**

Sylvia occidentalis, Towns. Journ. Ac. Phil. vii. p. 190 [1].

Dendræca occidentalis, Baird, Rev. Am. B. i. p. 183 [2]; Scl. Ibis, 1865, p. 89 [3]; Salv. Ibis, 1866, p. 191 [4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546 [5]; Baird, Brew. & Ridg. N.-Am. B. i. p. 266 [6]; Coues, B. Col. Vall. i. p. 258 [7].

Dendræca chrysoparia, Scl. P. Z. S. 1862, p. 19 [8] (nec Scl. & Salv.).

Dendræca niveiventris, Salv. P. Z. S. 1863, p. 187, t. 24. f. 2 [9].

Supra nigra, dorsi plumis cinereo limbatis, uropygio fere pure cinereo; pileo antico flavo, plumis nigro terminatis; fronte et capitis lateribus læte flavis; alis et cauda nigris, extus cinereo limbatis, illis albo bifasciatis, hujus rectricibus tribus utrinque externis albo pro majore parte notatis; subtus gula nigra, corporis reliquo cum hypochondriis pure albis; rostro et pedibus nigricantibus. Long. tota 4·9, alæ 2·7, caudæ 2·2, rostri a rictu 0·5, tarsi 0·65. (Descr. maris ex San Gerónimo, Guatemala. Mus. nostr.)

♀ mari similis, sed supra magis cinerascens, gula nigra absente. (Descr. feminæ ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. North America, Rocky Mountains to Pacific Ocean from the Columbia river southwards [6 7].—Mexico, Moyoapam (*Sumichrast* [5]), La Parada (*Boucard* [8]); Guatemala, Volcan de Fuego, San Gerónimo, Alotepeque (*O. S. & F. D. G.* [4 9]).

So little was known of this species in 1862 and 1863 that specimens that then came into our possession were in one case referred to a different species [8] and in another described as new [9], errors which were soon afterwards corrected [3], and Mexican and Guatemalan examples referred to the bird discovered by Nuttall and Townsend on the banks of the Columbia river in 1835. Since then *D. occidentalis* has been found in many parts of the Rocky Mountains and in Arizona [7]. In Mexico its range seems quite confined to the higher districts, Professor Sumichrast having obtained it at an elevation of 8200 feet above the sea. In Guatemala, though it was perhaps most abundant in the belt of pine trees of the Volcan de Fuego which covers the mountain above 10,000 feet, we nevertheless found it at much lower elevations, having shot specimens in the hills surrounding the plain of Salamá about 3500 feet above the sea, and near the mines of Alotepeque at a similar elevation. The bird is always found in the pine-forests; but the trees being of moderate height, specimens were not difficult to obtain. Its habits are similar to those of *D. virens*; and throughout the day it searches restlessly for food in the outer branches of the trees.

Of its breeding nothing has as yet been recorded. In Guatemala and Mexico it is doubtless only a winter visitant; and in the southern part of its range in North America it has only been observed on passage; but, as Dr. Coues remarks [7], it may yet be found to build in the higher pine-belts of the Colorado watershed. The northern part of its range is its summer quarters; and here it no doubt breeds.

16. **Dendrœca chrysoparia.**

Dendrœca chrysoparia, Scl. & Salv. P. Z. S. 1860, p. 298 [1]; Ibis, 1860, p. 273 [2]; Scl. Ibis, 1865, p. 89 [3]; Dresser, Ibis, 1865, p. 477 [4]; Baird, Rev. Am. B. i. p. 183 [5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 260 [6]; Salv. in Rowley's Orn. Misc. ii. p. 181. t. 23 [7]; Purdie, Bull. Nutt. Orn. Club, iv. p. 60 [8]; Brewster, Bull. Nutt. Orn. Club, iv. p. 77 [9].

Supra nigra, dorsi plumis aureo limbatis; capitis lateribus læte flavis, stria per oculos ducta nigra; alis et cauda nigricantibus, illis albo bifasciatis, hujus rectricibus tribus utrinque externis albo pro majore parte notatis; subtus gutture toto cum pectoris lateribus nigris, hypochondriis nigro striatis; rostro et pedibus nigricanti-corneis. Long. tota 4·5, alæ 2·5, caudæ 2·2, rostri a rictu 0·5, tarsi 0·7. (Descr. maris ex Tactic, Guatemala. Mus. nostr.).

Obs. D. virenti affinis, dorso nigro primo visu distinguenda.

Hab. North America, Texas[4 8 9].—Guatemala, Alta Vera Paz, near Tactic (*O. S.*[1]).

The early history of this rare species is given as follows by Salvin in Rowley's 'Ornithological Miscellany:'—

"The only time that I met with this bird was during my first visit to Vera Paz, in Guatemala, in 1859. I was riding to Coban, the chief town of Alta Vera Paz, on the 4th of November, and had just surmounted one of the ridges of the mountainous road that leads to the village of Tactic, where I intended passing the night, when two birds attracted my attention, and I secured both. On examination at home they proved to belong to an undescribed species; and the name of *Dendræca chrysoparia* was bestowed upon it by Mr. Sclater and myself.

"The altitude above the sea where I shot these birds is about 4500 feet, or a little more. . . . The birds were, after the manner of their congeners, hopping about the lower branches of the forest-trees, which are there not very high. But I was too intent upon securing the specimens to observe much of their movements and habits.

"A few years after this (in 1863–64) Mr. Dresser, during his stay in Texas, obtained a single specimen of *Dendræca chrysoparia*. He did not shoot it himself, but received it with other Mniotiltidæ from a man of the name of Ogden, who shot it at Howard's rancho on the river Medina."

The three specimens obtained up to 1876 were all figured in the work just quoted[7].

In the 'Bulletin of the Nuttall Ornithological Club' for 1879 (vol. iv.) we find two further references to this species, the latter account going a long way to complete its history. In April 1878 Mr. G. H. Ragsdale obtained a male specimen in Bosque county, Texas. This example is now in the United-States National Museum; but no particulars of its capture are given[8]. Mr. Brewster, in the same Journal[9], fully describes the breeding-habits of the species as furnished to him by Mr. Werner, who writes that whilst on a collecting-tour in the mountainous district of Comal County, Texas, he noticed these Warblers, and describes their habits as very similar to those of *D. virens*, being very active and always on the alert for insects, examining every limb of a tree for them, and now and then darting after them while on the wing. He found them invariably in cedar timber. On the 13th May, after some search, he found a nest containing three eggs, and one of the Cow-Bunting. Three other nests also were discovered, all similar in construction and placed in the forks of perpendicular limbs of *Juniperus virginianus*, at a height of from 10 to 18 feet from the ground. The outside of the nest is composed of the inner bark of the above-mentioned tree, interspersed with cobwebs well fastened to the limb, and in colour resembling the bark of the tree on which it is built, rendering it difficult to detect at a little distance.

Mr. Brewster describes the nest, more fully, as being in general character and appearance like that of *D. virens*, only twice the size. The interior is beautifully lined with the hair of different animals and numerous feathers, those of the Cardinal Grosbeak

being conspicuous by their scarlet colour. The eggs Mr. Brewster describes as peculiar, having a white ground, more or less thinly but evenly covered with fine but distinct spots of light reddish brown. Other eggs have much heavier markings.

17. **Dendrœca townsendi.**

Sylvia townsendi, Towns. Journ. Ac. Phil. vii. p. 191[1] (ex Nuttall).
Dendrœca townsendi, Scl. P. Z. S. 1858, p. 298[2]; 1859, p. 374[3]; Scl. & Salv. Ibis, 1859, p. 11[4]; Baird, Rev. Am. B. i. p. 185[5]; Baird, Brew. & Ridgw. N. Am. B. i. p. 265[6]; Coues, B. Col. Vall. i. p. 260[7].
Sylvia melanocausta, Licht. in Mus. Berol.[8].

Supra olivacea, interscapulio maculis celatis nigris notato, capite toto cum gula nigris, superciliis elongatis, macula suboculari et stria lata cervicis utrinque flavissimis; alis et cauda nigris, cinereo limbatis, illis albo bifasciatis, hac sicut in speciebus affinibus albo notata; subtus abdomine antico flavo, postico albo; hypochondriis et crisso nigro striatis. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)
♀ mari similis, pileo et genis dorso concoloribus, hypochondriorum striis obsoletis. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America, Rocky Mountains to the Pacific from Alaska[2] southwards[6 7].—Mexico, N.W. Mexico (*J. G. Bell*[3]), Oaxaca (*Deppe*, *Mus. Berol.*), La Parada[2], Totontepec[3] (*Boucard*); Guatemala, Dueñas[4], Volcan de Fuego and Coban (*O. S. & F. D. G.*).

Though no mention is made of this species by Lichtenstein in his published list of Deppe's Mexican collections, the specimens now in the Berlin Museum standing under the manuscript name of *Sylvia melanocausta* were doubtless the first obtained by any naturalist. A few years afterwards it was again discovered by Nuttall and Townsend during their memorable journey to the Pacific in 1835.

Within our territory it is only known as a winter visitant, the Mexican records being almost confined to its occurrence in the State of Oaxaca, where Deppe discovered it and where Boucard afterwards met with it. In Guatemala it is more abundant on the slopes of the mountains bordering the Pacific than elsewhere, though we have specimens captured at Coban in Vera Paz. In the Volcan de Fuego we found it at elevations ranging from under 5000 to 10,000 and 12,000 feet, the latter altitude including the pine-clad summit of the mountain. In its habits it resembles *D. virens* and its immediate allies.

Of its breeding nothing is as yet known. In the western States it has usually been observed in autumn, and then migrating. Its summer quarters are probably as far north as Alaska, where it was obtained by Wahlberg[2]; but Dr. Coues thinks that the pine-belts of the mountains of New Mexico and Arizona may shelter some birds during the breeding-season[7].

C. *Alæ haud albo notatæ.*

18. **Dendrœca discolor.**

Sylvia discolor, Vieill. Ois. Am. Sept. ii. p. 37, t. 98[1].
Dendrœca discolor, Baird, Brew. & Ridg. N. Am. B. i. p. 276[2]; Gundl. Orn. Cub. p. 67[3]; Coues, B. Col. Vall. i. p. 246[4].

Supra flavo-olivacea, dorso macula badia partim celata notato; capitis lateribus et corpore subtus flavissimis, loris et stria genali nigris, hypochondriis nigro striatis; alis et cauda fusco-nigris, olivaceo limbatis, illis immaculatis, hujus rectricibus tribus utrinque externis albo notatis; rostro et pedibus nigricanti-corneis. Long. tota 4·3, alæ 2·1, caudæ 2·0, rostri a rictu 0·55, tarsi 0·7. (Descr. exempl. ex Jamaica. Mus. nostr.)

♀ aut ♂ juv. mari similis, sed coloribus supra multo fuscescentioribus, subtus quoque obscuriore striis hypochondriorum fere obsoletis. (Descr. exempli ad fines Honduras capti. Mus. nostr.)

Hab. North America, Eastern States[2 4].—At sea near Swan Islands, Bay of Honduras (*O. S. & F. D. G.*).—Antilles, Cuba[3] to Virgin Islands[4].

Though this well-known species is perhaps not strictly entitled to a place in this work, its abundance in the West-India Islands in winter and the capture at sea of a young bird not far from the Swan Islands early in September 1861 make it more than probable that a few individuals, during their autumn migration, may reach the coast of Honduras and there pass the winter.

D. discolor breeds throughout its range in the United States. A full account of its nest and eggs is given by Dr. Brewer in the 'History of North-American Birds.'

PEUCEDROMUS.

Peucedramus, Coues, apud Henshaw, U.S. Expl. west of 100th Merid. V. Zool. p. 201 (1876); Coues, B. Col. Vall. i. p. 232. (Type *Sylvia olivacea,* Giraud.)

The position of the single species constituting this genus was for some time questioned before Dr. Coues separated it from *Dendrœca*, where it had long stood. Prof. Baird, in his 'Review of American Birds,' pointed out many of its characteristics; and to these Dr. Coues added others when formally describing the genus. The chief points in which it differs from *Dendrœca* are its peculiarly slender bill and straighter culmen, its more linear nostrils and unusually long wings, and somewhat peculiar coloration, no portion of its body being streaked as is usual in the members of *Dendrœca*. On the whole, we think Dr. Coues justified in making the separation.

1. **Peucedromus olivaceus.**

Sylvia olivacea, Giraud, B. Texas, p. 14, t. 7. f. 2[1]; Scl. P. Z. S. 1855, p. 66[2].
Rhimamphus olivaceus, Scl. P. Z. S. 1856, p. 291[3].

Dendræca olivacea, Scl. P. Z. S. 1858, p. 298[4]; 1859, p. 363[5]; Baird, Rev. Am. B. i. p. 205[6]; Salv. Ibis, 1866, p. 191[7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[8].

Peucedramus olivaceus, Coues, B. Col. Vall. i. p. 233[9].

Sylvicola tæniata, Du Bus, Bull. Ac. Brux. xiv. pt. 2. p. 104[10].

Supra cinereus, capite toto cum collo fulvo-aurantiacis, area oculorum nigra; alis nigris albo bifasciatis et secundariis interioribus flavo extus limbatis, remigibus reliquis albo marginatis, speculo alari albo; cauda nigra cinereo marginata, rectricibus duabus extimis pro majore parte albis; subtus gutture toto fulvo-aurantiaco; abdomine cinerascente medialiter albicante; pedibus obscure corylinis. Long. tota 5·2, alæ 2·9, caudæ 2·1, rostri a rictu 0·7, tarsi 0·75. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

♀ mari similis, colore aurantiaco sordide flavo, pileo et cervice media olivaceis, area oculorum fusca, et abdomine albicantiore distinguenda. (Descr. feminæ ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. North America, Arizona[9].—Mexico[10] (*Sallé*[3]), near the city (*le Strange*), alpine region of Vera Cruz (*Sumichrast*[3]), Popocatepetl (*Verreaux*[6]), Jalapa (*de Oca*[5]), La Parada (*Boucard*[4]); Guatemala, Volcan de Fuego[7], Volcan de Agua, Chilasco (*O. S. & F. D. G.*).

Though described as a bird of Texas by Giraud in 1841, it was many years before *P. olivaceus* obtained a satisfactory footing within the limits of the United States. Its presence, however, in Arizona was fully established by Mr. W. H. Henshaw in 1874; and the bird now takes its place in the North-American fauna without further question. Soon after its first discovery it was found in Mexico and described under the name of *Sylvicola tæniata* by the late Viscount Du Bus[10], a name shown by Mr. Sclater to belong to the same bird as Giraud's *Sylvia olivacea*[2]. The bird is now well known in Mexico, and is included in the lists of nearly every collector who has worked in the southern parts of that country. It seems, however, to be strictly confined in its range to the high mountains of the interior, where it is a characteristic species between 5000 and 10,000 feet[8]. In Guatemala it is also a denizen of the highest districts, being common in the upper pine-belts of the volcanos above the elevation of 10,000 feet. We also met with it in the pine-tracts of Chilasco, in Vera Paz, at about 6000 feet above the sea.

Mr. Henshaw describes the habits of this bird as resembling those of *Dendræca pinus*, the "Pine-Creeper," as it creeps actively over the large limbs of the pine-trees, after the manner of that species. In the places where we found the bird the pine trees are of no great size, and we did not notice any thing peculiar in the method in which it searched for its food. Besides frequenting the pines, we also saw it in the scanty bushes found scattered throughout these high districts.

Nothing is as yet known of its nesting-habits, nor yet of its migrations. Our own observations of it extend only to the winter months; but we are strongly of opinion that it remains in its upland home throughout the year.

SIURUS.

Seiurus, Swainson, Zool. Journ. iii. p. 171 (1827). (Type *Motacilla aurocapilla*, Linn).
Enicocichla (rectiùs *Henicocichla*), Gray, List Gen. B. p. 31 (1841).

This genus has much in common with *Dendræca*, differing chiefly in the style of the coloration of its members, their habits and actions. The rictal bristles are short, the wings long and pointed, and the tail nearly even, its undercoverts being fully developed.

Three species constitute the genus, all well-known birds; in addition to these a large race has recently been described from the Black Hills, Wyoming, as *Siurus nævius notabilis* *. The others are regular migrants, spending their winters in Mexico, Central America, the Antilles, and the northern parts of South America, and their summers in North America, where they breed.

A. *Vertex fusco-aurantiacus, supercilia alba nulla.*

1. Siurus auricapillus.

Motacilla aurocapilla, Linn. Syst. Nat. i. p. 334[1].
Seiurus aurocapillus, Sw. Phil. Mag. new ser. i. p. 369[2]; Lawr. Ann. Lyc. N. Y. ix. pp. 94[3], 200[4]; Baird, Rev. Am. B. i. p. 214[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547[6]; Frantz. J. f. Orn. 1869, p. 293[7]; Baird, Brew. & Ridgw. N. Am. B. i. p. 280[8]; Gundl. Orn. Cub. p. 68[9]; Lawr. Mem. Bost. Soc. N. H. ii. p. 269[10]; Bull. U.S. Nat. Mus. no. 4, p. 14[11].
Siurus auricapillus, Scl. & Salv. Ibis, 1859, p. 9[12]; Moore, P. Z. S. 1859, p. 55[13]; Coues, Bull. Nutt. Orn. Club, ii. p. 31[14]; B. Col. Vall. i. p. 297[15].
Henicocichla aurocapilla, Scl. P. Z. S. 1856, p. 293[16]; Cab. J. f. Orn. 1861, p. 84[17]; Lawr. Ann. Lyc. N. Y. viii. p. 180[18]; Scl. & Salv. P. Z. S. 1870, p. 836[19]; Salv. P. Z. S. 1870, p. 183[20].
Turdus auricapillus, Licht. Preis-Verz. mex. Vögel, p. 2 (cf. J. f. Orn. 1863, p. 57[21]).

Supra olivaceus, alis et cauda concoloribus, pileo fusco-aurantiaco nigro circumcincto; subtus albus, pectore toto et hypochondriis nigro guttatis, stria rictali nigra; oculorum ambitu albido; rostri maxilla cornea, mandibula albicante; pedibus carneis. Long. tota 5·1, alæ 2·9, caudæ 2·1, rostri a rictu 0·6, tarsi 0·8. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)
♀ mari omnino similis.

Hab. North America, eastwards of the Rocky Mountains, Alaska[8 15].—Mexico (*Deppe*[20], *Sallé*[15]), Mazatlan (*Grayson*[10]), Tableland? (*Bullock*[2]), Orizaba &c. (*Sumichrast*[5 6]), Guichicovi, Tehuantepec (*Sumichrast*[11]), Merida, Yucatan (*Schott*[4]); Guatemala, Escuintla, Savana Grande, Dueñas[12], Tactic, Coban, Choctum (*O. S. & F. D. G.*); Honduras, Omoa (*Leyland*[13]), San Pedro (*G. M. Whitely*[19]); Nicaragua, Greytown (*Holland*[18]); Costa Rica, San José (*v. Frantzius*[7]), Barranca (*Carmiol*[3]); Panama, Volcan de Chiriqui (*Arcé*[20]).—Bermuda[5]; Antilles[5 9].

* Ridgway, Proc. U.S. Nat. Mus. 1880, p. 12.

This is one of the commonest of the winter visitants to Mexico and Central America, being found throughout the country at that season from Mazatlan to Chiriqui. It does not, however, appear to reach the southern continent in its southward flight; nor have we even seen specimens from the line of railway in the State of Panama. Near Mazatlan Grayson only met with it between November and April in the densest woods, where it was shy, solitary, and silent [10]. Further south its habits are much of this character; but in Costa Rica it has been noticed as early as August [7]. In Cuba, Dr. Gundlach gives the end of August and the beginning of September as the time of its arrival, and states that it remains in the island in great numbers till the following April [9]. It is a bird of solitary habits, and frequents woods at elevations ranging from nearly the sea-level to 5000 feet, living mostly on or near the ground, where it seeks its food consisting chiefly of insects, seeds, and small shells.

In North America, though generally a bird of the Eastern Province, in high latitudes it spreads across the continent, and has been found in Alaska [15]. It usually arrives from its winter quarters about the beginning of May, and remains far into September. During this time it breeds. Its nest is a domed structure, placed on the ground in a bank under the shelter of a projecting root or in a thick clump of bushes. It is made externally of wood, mosses, lichens, and dry leaves, with a few stems and broken fragments of plants. The entrance is strongly built of stout twigs; its upper portion is a strong framework of fine twigs, roots, stems, mosses, dry plants, &c.; and the lining is of finer materials of the same kind [8]. The song of the male during the mating-season is described as being of excellent quality [8].

The eggs are stated to vary considerably; the normal colour is creamy white, marked chiefly at the larger end with mingled dots and blotches of red, reddish brown, lilac, dark purple, and ferruginous, these spots in some cases being collected in a crown round the large end of the egg [8].

Dr. Coues [15] has taken great pains to collect the references to the literature of this species.

B. *Vertex dorso concolor, supercilia alba.*

2. Siurus noveboracensis.

Motacilla nævia, Bodd. Tabl. Pl. Enl. p. 47 [1] (ex D'Aub. Pl. Enl. 752. f. 1).
Siurus nævius, Coues, B. Col. Vall. i. p. 299 [2].
Motacilla noveboracensis, Gm. Syst. Nat. i. p. 958 [3].
Siurus noveboracensis, Scl. & Salv. Ibis, 1859, p. 10 [4]; Scl. P. Z. S. 1859, p. 363 [5].
Sciurus noveboracensis, Lawr. Ann. Lyc. N. Y. vii. p. 322 [6]; ix. pp. 94 [7], 200 [8]; Bull. U. S. Nat. Mus. no. 4, p. 14 [9]; Baird, Rev. Am. B. i. p. 215 [10]; Frantzius, J. f. Orn. 1869, p. 293 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [12]; Baird, Brew. & Ridgw. N. Am. B. i. 283 [13]; Gundl. Orn. Cub. p. 68 [14].

Henicocichla noveboracensis, Cab. J. f. Orn. 1860, p. 324[15]; Scl. Cat. Am. B. p. 25[16]; Scl. & Salv. P. Z. S. 1864, p. 346[17]; 1870, p. 836[18]; Salv. P. Z. S. 1870, p. 183[19].

Seiurus tenuirostris, Sw. Phil. Mag. new ser. i. p. 369[20].

Supra olivaceo-fuscus, alis caudaque unicoloribus; stria superciliari et corpore subtus albidis flavo leviter tinctis, genis, pectore toto et hypochondriis fusco-nigro striatis, gula et abdomine medio fere immaculatis, rostro et pedibus corneis. Long. tota 5·0, alæ 2·9, caudæ 2·1, rostri a rictu 0·7, tarsi 0·7. (Descr. maris ex Belize, British Honduras. Mus. nostr.)

♀ mari omnino similis.

Hab. North America generally[2].—Mexico, Tableland? (*Bullock*), Jalapa (*de Oca*[5]), Mirador (*Sartorius*[10]), Orizaba, &c. (*Sumichrast*[12]), Tapana, Tehuantepec (*Sumichrast*[9]), Merida, Yucatan (*Schott*[8]); British Honduras, Belize (*O. S.*[4]); Guatemala, Coban, San Gerónimo, Dueñas, Patio Bolas, Retalhuleu (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely*[18]); Nicaragua (*J. M. Dow*[10]); Costa Rica, San José (*Frantzius*[7 11]), Angostura (*Carmiol*[7 11]); Panama, Bibala, Calovevora[19] (*Arcé*), line of railway (*M'Leannan*[6 17]).—Antilles[10 14], and northern parts of South America[10 16].

This bird is best known by Gmelin's name *Motacilla noveboracensis*, which was almost universally applied to it until Dr. Coues[2] argued that Boddaert's title *M. nævia* ought to supplant *M. noveboracensis*, both names having the same basis and the former several years priority. But as Boddaert had previously applied the same name to the well-known European Warbler *Locustella nævia*, Gmelin's designation must be retained. The only other synonym that has been applied to this bird from our region is *Seiurus tenuirostris*, Sw.; and this can belong to no other species than *S. noveboracensis*. Elsewhere, in its wide range, a host of other names have been given to it; these have been carefully collected by Dr. Coues[2], and, with the references to the literature of the species, occupy one and a half closely printed pages of his work.

Like so many Mniotiltidæ, *Siurus noveboracensis* is a winter visitant to the countries lying beyond the borders of the United States. Throughout Mexico and Central America it is a very common bird at this season, and is found everywhere from the sea-level up to an elevation of 5000 or 6000 feet. It utters no song during the period of its stay in these countries; but its clear sharp call-note is easily recognized amongst those of its allies. In Guatemala it may usually be seen near running streams, or by the side of pools and in open places rather than in the forest.

The breeding-quarters of this species extend over nearly the whole of North America[2]; but during the season of nesting these birds are more retiring than during the winter. The song is described by several writers as of good quality, but not so powerful as that of *S. motacilla*.

The nest is a beautiful structure placed on or close to the ground, and is composed of loose moss (*Hypnum*) intermingled with dead leaves and stems; the lining is composed of the fruit-stalks of the moss thickly felted together[13].

The eggs are white, more or less marked, especially round the larger end, with lines, dots, and dashes of various shades of umber-brown [13].

3. Siurus motacilla.

Turdus motacilla, Vieill. Ois. Am. Sept. ii. p. 9, t. 65 [1].
Henicocichla motacilla, Cab. J. f. Orn. 1857, p. 240 [2].
Siurus motacilla, Coues, Bull. Nutt. Club. ii. p. 33 [3]; B. Col. Vall. i. p. 299 [4]; Sennett, Bull. U. S. Geol. Surv. iv. p. 13 [5].
Turdus ludovicianus, Aud. Orn. Biogr. i. p. 99 [6].
Siurus ludovicianus, Scl. P. Z. S. 1859, pp. 363 [7], 373 [8]; Scl. & Salv. Ibis, 1860, p. 273 [9].
Sciurus ludovicianus, Baird, Rev. Am. B. i. p. 217 [10]; Lawr. Ann. Lyc. N. Y. ix. p. 94 [11]; Mem. Bost. Soc. N. H. ii. p. 269 [12]; Bull. U. S. Nat. Mus. no. 4, p. 15 [13]; Baird, Brew. & Ridgw. N. Am. B. i. p. 287 [14]; Gundl. Orn. Cub. p. 68 [15].
Henicocichla ludoviciana, Scl. Cat. Am. B. p. 25 [16]; Salv. P. Z. S. 1870, p. 183 [17].
Henicocichla major, Cab. Mus. Hein. i. p. 16 [18].

Similis præcedenti, sed rostro longiore et colore corporis subtus lactescenti-albo nec flavido distinguendus. Long. tota 5·4, alæ 3·25, caudæ 2·1, rostri a rictu 0·75, tarsi 0·9. (Descr. exempl. ex Alotenango, Guatemala. Mus. nostr.)

Hab. North America [1], Eastern States [4 14], Texas [5].—Mexico, Tamaulipas (*Couch* [14]), Mazatlan (*Grayson* [12]), Colima (*Xantus* [10 12]), Yuantepec (*Deppe*, *Mus. Berol.*), Mirador (*Sartorius* [10]), Jalapa [18] (*de Oca* [7]), Orizaba (*Botteri* [16]), Totontepec (*Boucard* [8]), Barrio, Santa Efigenia (*Sumichrast* [13]); Guatemala, Retalhuleu, Alotenango [9], Volcan de Fuego [9], Coban [9], Choctum (*O. S. & F. D. G.*); Costa Rica, Barranca (*Carmiol* [11]); Panama, Bugaba (*Arcé* [17]).—Antilles, Cuba [2 15], Jamaica [16], &c.

The application of Vieillot's name *Turdus moticilla* has long been a matter of doubt, and was always so treated by American writers until 1877, when Dr. Coues [3] satisfied himself that it was really meant for the bird usually known under Audubon's title *Siurus ludovicianus*. In taking this course he followed the opinion of Bonaparte and Cabanis [2] on this point.

Siurus motacilla, as it is now the fashion to call this species, has very much the same range in our territory as *S. noveboracensis*, except that it does not penetrate beyond the district of Chiriqui, and hence falls short of the extended range of its congener in the southern continent. It is nowhere so abundant as that species, though found in places of considerable differences of altitude, ranging from 5000 feet to nearly the sea-level. In Guatemala we usually found it in the forest in the bed of a dry watercourse or the bottom of a ravine, *S. noveboracensis* seeking rather the more open running streams. Our earliest specimens were obtained in August and September; and it probably stays in the country until the following April. Its habits closely resemble those of its congener; and in the winter season its note is a clear sharp call. Grayson speaks of

its being not common near Mazatlan, where it frequents stagnant pools or solitary brooks[12].

In North America, where it is only known as a summer visitant, its chief resort is the Southern and South-western States, appearing only as a straggler in more northern districts. It is one of the earliest Warblers to arrive, and may be heard in full song from the end of February. Its song is distinguished by the richness and power of its note [14]. Not much seems to be known of its nest and eggs, as Brewer's account of them is taken from Audubon [14].

As in the case of the two preceding species, its literature is fully given in Dr. Coues's volume [4].

OPORORNIS.

Oporornis, Baird, B. N. Am. p. 246 (1858). (Type *Sylvia agilis*, Wils.)

The members of this genus much resemble some of the next following, the style of colour being much the same. They have, however, the wing pointed and longer than the tail, in which character they agree with *Siurus*. The bill has a distinct notch, the rictal bristles very short, the tail nearly even, the feathers acuminate, and the under coverts long. The tarsi are long, and the claws large.

Two species are known of the genus, whereof one, *O. formosa*, enters our fauna as a winter visitant. Of the other, *O. agilis*, the history is by no means complete. It is not known to have occurred beyond the borders of the Eastern States; and though not uncommon at certain seasons in Massachusetts, its breeding-haunts have not yet been detected.

1. Oporornis formosa.

Sylvia formosa, Wils. Am. Orn. iii. p. 85, t. 25. f. 3 [1].

Oporornis formosa, Scl. & Salv. Ibis, 1859, p. 10 [2]; P. Z. S. 1864, p. 347 [3]; Scl. P. Z. S. 1862, p. 19 [4]; Lawr. Ann. Lyc. N. Y. vii. p. 468 [5], ix. p. 94 [6]; Bull. U.S. Nat. Mus. no. 4, p. 16 [7]; Baird, Rev. Am. B. i. p. 218 [8]; Dresser, Ibis, 1865, p. 477 [9]; Salv. P. Z. S. 1867, p. 136 [10]; Frantz. J. f. Orn. 1869, p. 293 [11]; Baird, Brew. & Ridgw. N. Am. B. i. p. 293 [12]; Gundl. Orn. Cub. p. 68 [13]; Coues, B. Col. Vall. i. p. 309 [14].

Supra olivaceus, alis caudaque concoloribus; capite summo loris et genis nigris, illo olivaceo transfasciato; superciliis, oculorum ambitu parte postica et corpore toto subtus flavis; rostro corneo, mandibulæ basi flavicante; pedibus carneis. Long. tota 4·8, alæ 2·75, caudæ 2·0, rostri a rictu 0·6, tarsi 0·9. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

♀ mari similis, colore nigro capitis absente. (Descr. feminæ ex Chiriqui, Panama. Mus. nostr.)

Hab. North America, Eastern States from the Mississippi valley eastwards [12 14], Texas [9]. —Mexico, Playa Vicente (*Boucard* [4]), Guichicovi (*Sumichrast* [7]); Guatemala [2], Dueñas, Calderas, Coban, Choctum (*O. S. & F. D. G.*); Costa Rica [11], Angostura,

Dota Mountains (*Carmiol* [6]); Panama, Chiriqui, Santa Fé (*Arcé* [10]), Lion Hill (*M'Leannan* [4 2]), Chepo (*Arcé*).—Cuba [13].

This species appears to be of rare occurrence in Mexico, as only two instances are recorded of its having been observed in that country [4 7]. In Guatemala, however, during the winter months it is far from uncommon, and is generally distributed from an elevation of 1200 feet up to 7000 feet above the sea, frequenting both the forests of the lowlands and the second-growth woods of higher altitudes. Southwards of Guatemala it probably occurs everywhere in winter as far as Chepo in the isthmus of Panama, though our records only establish its presence in Costa Rica, the adjoining part of Veragua, and a little beyond the line of the Panama railway. In Cuba it is, according to Dr. Gundlach, a very rare bird [13]. Hence we may conclude that the line of the migration of this species from the Eastern States to Central America is rather a narrow one, extending from the State of Vera Cruz to the eastern coast of Yucatan.

In its summer range *Oporornis formosa* occupies the eastern portion of the United States, and goes as far north as Washington and Chicago, and westwards to the Kansas river [12]. In Texas, where Mr. Dresser observed it near San Antonio [9], it is migratory, passing through the country in spring and autumn.

The nest is described by Brewer [12] as a clumsily-made structure, placed on the ground, consisting outwardly of dead leaves, and lined inwardly with fine roots.

The eggs are white, sprinkled all over with fine dots of red and reddish brown, especially at the larger end.

The song of this species is described by Mr. Ridgway as a very pretty fine whistle, resembling that of *Cardinalis virginianus*, but finer in tone, though not so powerful.

To Dr. Coues we are indebted for a full list of the references to the literature of this bird [14].

GEOTHLYPIS.

Geothlypis, Cabanis, Arch. f. Naturg. i. pp. 316, 349 (1847); Baird, Brew. & Ridgw. N. Am. B. i. p. 295.

Trichas, Swainson, Zool. Journ. iii. p. 167 (nec Gloger).

Twelve species and races are now recognized of this genus, whereof eight occur within the limits of the Central-American fauna. Of these, three spend the winter in the country as migrants from the north, three are peculiar to Mexico, one is found in Guatemala and Costa Rica, and one is peculiar to the district of Chiriqui. Of the extra-limital species, *G. rostrata* is peculiar to the Bahamas; *G. semiflava*, *G. æquinoctialis*, and *G. velata* are found respectively in Ecuador, in Guiana and Amazonia, and in Brazil.

All the members of the genus have very short rounded wings. The rictal bristles

are but slightly developed; the tail is long, compared with the wings, and rounded; the legs are stout. The general colour is olivaceous above, and yellow beneath, the tail being without spots.

A. *Gula flava.*

a. *Pileus summus in mare albus.*

1. Geothlypis trichas.

Turdus trichas, Linn. Syst. Nat. i. p. 293 [1].

Geothlypis trichas, Baird, U.S. Bound. Surv. ii. pt. 2, Birds, p. 10 [2]; Rev. Am. B. i. p. 220 [3]; Scl. & Salv. Ibis, 1859, p. 10 [4]; P. Z. S. 1870. p. 836 [5]; Scl. P. Z. S. 1859, pp. 363 [6], 373 [7]; Cab. J. f. Orn. 1861, p. 84 [8]; Lawr. Ann. Lyc. N. Y. ix. p. 200 [9]; Mem. Bost. Soc. N. H. ii. p. 269 ; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [11]; v. Frantzius, J. f. Orn. 1869, p. 293 [12]; Dugès, La Nat. i. p. 140 [13]; Salv. Ibis, 1872, p. 146 et seq. [14]; Baird, Brew. & Ridgw. N. Am. B. i. p. 297 [15]; Gundl. Orn. Cub. p. 69 [16]; Coues, B. Col. Vall. i. p. 309 [17].

Sylvia marylandica, Wils. Am. Orn. i. p. 88, t. 6. f. 1 [18].

Trichas marylandica, Gosse, B. Jam. p. 148 [19]; Scl. P. Z. S. 1856, p. 292 [20]; Bryant, Pr. Bost. Soc. N. H. vii. p. 110 [21].

Trichas personatus, Sw. Phil. Mag. new ser. i. p. 433 .

Supra olivacea, alis concoloribus, cauda paulo lætiore, fascia pileum summum et cervicis latera occupante griseo-alba, fronte, regione oculari et genis nigerrimis; subtus gutture toto et crisso flavis, ventre ochracescente; rostri maxilla corylina, mandibula et pedibus carneis. Long. tota 5·0, alæ 2·2, caudæ 2·1, rostri a rictu 0·55, tarsi 0·8. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

♀ mari similis, capite et cervicis lateribus inornatis dorso concoloribus. (Descr. feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. North America, United States generally [15], Texas [2].—Mexico [20], Mazatlan, Tepic (*Grayson* [10]), Guanajuato (*Dugès* [13]), Orizaba (*Sumichrast* [11]), Jalapa (*de Oca* [6]), valley of Mexico (*le Strange*), near Vera Cruz (*Bullock* [22]), Totontepec and Oaxaca (*Boucard* [7]), Merida, Yucatan (*Schott* [9]), Progreso, Yucatan (*Gaumer*); Guatemala, Chiapam, Retalhuleu, Escuintla, Dueñas [4], San Gerónimo, Coban, Choctum (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [5]); Costa Rica [8], San José (*v. Frantzius* [12]); Panama, Volcan de Chiriqui (*Arcé*).—Antilles, Bahamas [21], Cuba [16], Jamaica [19], &c.

Throughout Mexico and Guatemala the Maryland Warbler is one of the commonest species of its family during the winter months, being found in numbers from the Rio Grande valley and Mazatlan in the north to the confines of the republic of Honduras. In the northern parts of Mexico, according to Grayson [10], it remains to breed; he observes that it is "a common species from October until the latter part of June. They migrate into the high central plains to breed. I have seen it in the month of July in the vicinity of Tepic." Southwards of this it seems to be much more rarely met with, as we have on record only a single instance of its occurrence in Costa Rica [12], and we

possess but a single male specimen from the Volcan de Chiriqui. In Guatemala we found it at all elevations from the sea-level at Chiapam, on the shores of the Pacific, up to the central tablelands of 5000 feet elevation. About Dueñas it was especially abundant, frequenting the reeds bordering the lake, and also in the bushes on the banks of the Rio Guacalate.

In North America this species is one of the most widely spread, as well as familiar, of the Mniotiltidæ. Its habits have accordingly been very fully described [15]. Its nest is almost invariably placed on the ground, and is described as a large loose structure, composed outwardly of leaves and dry sedges covering an inner framework of finer materials more carefully woven, the lining being of fine grasses. The eggs are clear white, dotted and blotched round the larger end with purple, reddish brown, and dark umber.

In the larger West-Indian Islands *Geothlypis trichas* is also very common in winter, especially in Cuba [16] and Jamaica [19], where numbers are to be met with in all stages of plumage. In Central America, too, birds in similar phases of plumage are usually seen, females and young birds predominating, adult males in perfect feather being rather rare.

Prof. Baird, in his 'Review of American Birds' [3], describes at some length the differences observable in individuals of this species; but he comes to the conclusion that no permanent characters are to be traced justifying its division into two or more races. This view is confirmed by subsequent writers.

2. Geothlypis melanops.

Geothlypis melanops, Baird, Rev. Am. B. i. p. 222[1]; Scl. & Salv. P. Z. S. 1870, p. 551[2]; Salv. Ibis, 1872, p. 146 et seq.[3].

Similis præcedenti quoad coloris capitis distributionem, sed pileo summo lactescenti-albo, cervicis lateribus flavidis, rostro nigerrimo et corpore toto subtus lætissime flavo distinguenda. Long. tota 5·0, alæ 2·4, caudæ 2·4, rostri a rictu 0·65, tarsi 0·9. (Descr. exempli ex Mexico. Mus. nostr.)

♀ supra fusco-olivacea, alis et cauda concoloribus, loris pallidis; subtus ochraceo-flava, hypochondriis fuscescentioribus; rostro obscure corneo, pedibus corylinis. (Descr. feminæ ex Mexico. Mus. nostr.)

Hab. Mexico (*U.S. Nat. Mus.*[1]), S.W. Mexico (*Rébouch*[2]).

Of this species but little is known at present, as it seems never to have come under the notice of the many diligent ornithologists who have worked in Mexico. The only specimen of which the precise origin is at all exactly known was obtained by M. Rébouch near Putla or San Juan del Rio, on the western slope of the Cordillera, a little to the north-west of Oaxaca. Several other examples have come under our notice, all of them in collections of Mexican bird-skins, the precise origin of which cannot often be traced.

The bird is certainly like *Geothlypis trichas*, but can at once be distinguished by the

entire underparts being of a nearly uniform yellow, its black bill, and other minor characters.

It is in all probability a resident species in Mexico, where alone it has been procured up to the present time.

b. *Pileus summus in mare niger.*

3. **Geothlypis speciosa.**

Geothlypis speciosa, Scl. P. Z. S. 1858, p. 447[1]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[2]; Salv. Ibis, 1872, p. 146 et seq.[3].

Saturate flavo-oleaginea; capite (præcipue ad latera) cum regione auriculari nigris; subtus vivide flava, hypochondriis brunnescentioribus; rostro nigro, pedibus corylinis. Long. tota 5·3, alæ 2·4, caudæ 2·3, rostri a rictu 0·65, tarsi 0·85. (Descr. exempli typici maris ex Mexico. Mus. P. L. Sclater.)

♀ supra fusco-olivacea fere unicolor, subtus ochracea, hypochondriis fuscescentibus; rostro et pedibus nigricantibus. (Descr. exempli ex Mexico. Mus. nostr.)

Hab. Mexico (*de Saussure*[1]), mountains of Orizaba (*Sumichrast*[2]).

But little is known of this pretty species, which was first obtained by M. de Saussure during his travels in Eastern Mexico, and described by Mr. Sclater in 1858[1]. Since then the only specimen that we have met with is a female in our own collection, which was picked out of a lot of Mexican skins, the precise locality where they were obtained not being stated. Prof. Sumichrast refers to this species a bird found in the alpine region of the mountains of Orizaba[2], and speaks of its being represented in the collection of the late Señor Mateo Botteri.

The authors of the 'History of North-American Birds'* throw great doubts on the validity of this species and of *G. semiflava* of Ecuador, believing them to be referable to *G. trichas*. A moment's comparison of specimens of these three species is enough to show that they are all three perfectly distinct from one another, as Salvin has already pointed out[3]. The absence in the male of the white band across the head at once separates *G. speciosa* and *G. semiflava* from *G. trichas*; and the black bill and ochre-yellow tint of the under plumage of *G. speciosa* separate that species from *G. semiflava*, which has the base of the mandible whitish and the under surface clear yellow.

Like *G. melanops*, *G. speciosa* would appear to be a sedentary species in Southern Mexico.

c. *Pileus summus in mare cinerascens.*

4. **Geothlypis chiriquensis.** (Tab. IX. fig. 1.)

Geothlypis chiriquensis, Salv. Ibis, 1872, p. 148[1].

Supra olivacea, alis et cauda concoloribus; capite postico cinereo, antico cum genis et regione auriculari nigris;

---

* Baird, Brew. & Ridgw. N. Am. B. i. p. 296.

subtus omnino flava, hypochondriis olivaceis; rostri maxilla nigra, mandibula cornea; pedibus carneis. Long. tota 5·0, alæ 2·4, caudæ 2·1, rostri a rictu 0·62, tarsi 0·9. (Descr. maris ex Volcan de Chiriqui. Mus. nostr.)

♀ adhuc ignota.

Hab. PANAMA, Volcan de Chiriqui (*Arcé*[1]).

This bird is a close ally of the Brazilian *Geothlypis velata*, and an interesting one on that account, its relationship with that species being closer on the whole than with *G. æquinoctialis*, its nearest neighbour in point of locality. An attempt to account for this peculiar distribution has already been made[1]; but as the question will have to be discussed in a more general way in the introduction to this work, it would be superfluous to refer to it here.

Like *G. velata* this species has the feathers of the postocular region grey; but it differs from its ally in the much greater extent of the black on the forehead. *G. æquinoctialis* has the postocular area olive-coloured, thus differing from both the above-named species.

Since describing the type, which was then unique, other specimens have reached us, all of them bearing the distinctive characters of *G. chiriquensis*.

The type specimen is now figured.

5. **Geothlypis caninucha.** (Tab. IX. fig. 2.)

Geothlypis poliocephala, var. *caninucha*, Baird, Brew. & Ridgw. N. Am. B. i. p. 296[1].
Geothlypis poliocephala, Baird, Rev. Am. B. i. p. 225, partim[2]; Lawr. Ann. Lyc. N. Y. ix. p. 200[3]; Salv. Ibis, 1870, p. 114[4].
Geothlypis æquinoctialis, Salv. & Scl. Ibis, 1860, p. 273[5] (nec Gmelin).

Supra olivacea, alis et cauda concoloribus; capite summo et regione postoculari griseis; fronte anguste, loris et plumis subocularibus nigris; subtus flava, hypochondriis ochrascescentioribus; rostro robusto incurvo, maxilla fusca, mandibula flavida; pedibus carneis. Long. tota 5·7, alæ 2·4, caudæ 2·6, rostri a rictu 0·6, tarsi 0·93. (Descr. maris ex Costa Rica. Mus. nostr.)

♀ aut ♂ juv. mari similis, sed capite inornato dorso concolori.

Hab. MEXICO, Merida (*Schott*[3])?; BRITISH HONDURAS (*Blancaneaux*); GUATEMALA, Retalhuleu, Patio Bolas, Dueñas[5], San Gerónimo (*O. S. & F. D. G.*); COSTA RICA (*J. Carmiol*[4]).

Specimens of this bird were first obtained at Dueñas in Guatemala; but they were referred to the South-American *G. æquinoctialis*[5], the differences between them not being then recognized. Other examples were afterwards found in Guatemala in various localities ranging in altitude from 800 to 5000 feet above the sea-level; but it is not a common bird anywhere in that country. Its chief place of resort is in low scrubby second-growth woods, and often near water, its habits much resembling those of *Geothlypis trichas*.

Costa-Rica specimens agree accurately with Guatemalan ones; but, as already stated, the Mexican bird is distinguished by its white eyelids.

As to the Yucatan bird we cannot speak positively. Mr. Lawrence calls it *G. poliocephala*[3]; but that was when *G. caninucha* had not been recognized as a distinct race. A specimen from British Honduras must be referred to *G. caninucha*, and it is improbable that the Yucatan bird differs from it.

The figure is taken from a Costa-Rica specimen.

6. **Geothlypis poliocephala.** (Tab. IX. fig. 3.)

Geothlypis poliocephala, Baird, Rev. Am. B. i. p. 225[1]; Salv. Ibis, 1872, p. 147 et seq.[2]; Baird, Brew. & Ridgw. N. Am. B. i. p. 296[3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 269[4].
Trichas delafieldi, Scl. P. Z. S. 1856, p. 293[5]?

Præcedenti persimilis, sed ciliis albis forsan distinguenda.

Hab. Mexico, Mazatlan (*Grayson*[1 3]).

When Prof. Baird first described this species[1] he associated together the specimens from North-western Mexico and from Guatemala, at the same time pointing out certain differences between them. The chief of these consisted in the former having white eyelids, not observed in the Guatemalan bird. On the strength of these differences Mr. Ridgway separated the two birds, calling the Mexican one *G. poliocephala*, and the Guatemalan one *G. caninucha*[3]. After examining the types, which were kindly sent us from Washington, we feel great doubts as to whether the two birds can be kept separate, even as races. Some of our Guatemalan specimens have white feathers in the eyelids, as we have already noticed[2]; and thus one of the chief distinctions is not entirely trustworthy. Moreover the skins are none of them in good fresh condition, rendering a comparison of their colours not altogether satisfactory. However, as Mr. Ridgway has gone so far as to separate the two birds, we deem it best to follow in the lines of his arrangement, giving a figure of each bird, the strong likeness between the two being, it must be confessed, very obvious.

The only specimens of the true *G. poliocephala* that we have seen are the types procured at Mazatlan by Grayson, one of which is now figured; but it is not improbable that M. Sallé's skins, called by Mr. Sclater *Trichas delafieldi* in his first paper on Mexican birds[5], really belonged to this species. *T. delafieldi* of Audubon is now supposed to be the same as *T. æquinoctialis*, the Mexican representative of which, unrecognized in 1856, would be either *G. poliocephala* or *G. caninucha*, but more probably the former.

B. *Gula cinerea.*

7. **Geothlypis philadelphia.**

Sylvia philadelphia, Wils. Am. Orn. ii. p. 101, t. 14. f. 6[1].
Geothlypis philadelphia, Lawr. Ann. Lyc. N. H. vii. p. 322[2], ix. p. 94[3]; Dresser, Ibis, 1865, p. 476[4]; Frantz. J. f. Orn. 1869, p. 294[5]; Wyatt, Ibis, 1871, p. 322[6]; Salv. Ibis, 1872, p. 149[7];

Ridgw. Am. Journ. Sc. 1872, p. 459[6]; Baird, Brew. & Ridgw. N. Am. B. i. p. 301[9]; Coues, B. Col. Vall. i. p. 313[10]; Merrill, Pr. U. S. Nat. Mus. i. p. 124[11]; Scl. & Salv. P. Z. S. 1879, p. 494[12].

Supra olivacea, alis et cauda concoloribus; capite undique cum gutture cinereis, loris paulo nigricantibus; gulæ plumis intus nigris; pectore plaga nigra ornato; abdomine toto flavo; rostri maxilla cornea, mandibula flavicante; pedibus pallide corylinis. Long. tota 5·0, alæ 2·55, caudæ 2·1, rostri a rictu 0·6, tarsi 0·84. (Descr. maris ex Angostura, Costa Rica. Mus. nostr.)

♀ mari similis, sed coloribus valde dilutioribus, gutture vix cinereo tincto.

Hab. North America, Eastern Provinces, British Provinces, and occasionally Greenland[9 10], Texas[4 11].—Costa Rica, San José (*v. Frantzius*[5]), Angostura and Dota Mountains (*Carmiol*[3]); Panama, Chiriqui (*Arcé*), line of railway (*M'Leannan*[2]).—Colombia, Magdalena[6] and Cauca valleys[12].

Though Mexico has been included in the range of this bird, a further examination of the specimens upon which the statement was founded has shown that they really belong to *G. macgillivrayi*, the western representative of this species[7]. In Texas, however, both Mr. Dresser[4] and Dr. Merrill[11] record its occurrence, the former stating that it was common on passage early in May 1864.

In Costa Rica, the adjoining State of Panama, and throughout the northern portion of Colombia, *G. philadelphia* is a common bird in the winter season; but as it does not touch on any of the West-Indian Islands, either during its flight southwards in autumn, or during its return journey in the spring, the line of its migration doubtless lies sufficiently to the eastward of the northern portions of the mainland to cause it to avoid those regions, the Antilles not even being used as a resting-place *en route*. In Costa Rica, and in the neighbourhood of Chiriqui, it is found in company with *G. macgillivrayi*; but in the rest of the State of Panama, and in Colombia, it entirely supplants that species, the latter bird taking its place in Guatemala and Mexico.

In the United States, where this species spends the summer months, it is reported to be rare in the Eastern Province, but more abundant in the Mississippi valley, breeding in numbers in Minnesota and Eastern Dakota. It also breeds in the State of New York and in New England[10]. Brewer describes the nest as a massive structure placed about a foot from the ground, and composed outwardly of small dry stalks and leaves, with a very deep cavity lined with fine black roots. The eggs are pinkish white, marked with dots and blotches of varying size of dark purplish brown[9].

8. **Geothlypis macgillivrayi.**

Sylvia macgillivrayi, Aud. Orn. Biogr. v. p. 75, t. 399. f. 4, 5[1].

Geothlypis macgillivrayi, Baird, U. S. Bound. Surv. ii. pt. 2, Birds, p. 10[2]; Rev. Am. B. i. p. 227[3]; Scl. & Salv. Ibis, 1859, p. 10[4]; Scl. P. Z. S. 1859, pp. 363[5], 373[6]; Cab. J. f. Orn. 1861, p. 84[7]; Lawr. Ann. Lyc. N. Y. ix. p. 94[8]; Frantz. J. f. Orn. 1869, p. 294[9]; Salv. Ibis, 1872, p. 152[10]; Baird, Brew. & Ridgw. N. Am. B. i. p. 303[11]; Coues, B. Col. Vall. i. p. 312[12].

Geothlypis philadelphia, β. macgillivrayi, Ridgw. Am. Journ. Sc. ser. 3, iv. p. 459[13]; Lawr. Mem. Bost. Soc. N. H. ii. p. 269[14]; Bull. U. S. Nat. Mus. no. 4, p. 17[15].
Geothlypis philadelphia, Scl. Cat. Am. B. p. 27 (nec Wilson)[16].
Sylvia vegeta, Licht. fide Bp. Consp. Av. i. p. 310[17].
Geothlypis, sp. ?, Baird, Rev. Am. B. i. p. 227[18].

Præcedenti similis, sed ciliis albis distinguenda, plaga pectorali quoque absente. (Descr. exempl. ex Guatemala. Mus. nostr.)

Hab. North America, Middle and Western Provinces[11 12].—Mexico[17], Monterey (*Couch*[2]), Mazatlan (*Grayson*[14]), Jalapa (*de Oca*[5]), Orizaba (*Sumichrast*[3], *Botteri*[16]), Choapam and Cinco Señores (*Boucard*[6]), Chihuitan and Tehuantepec city (*Sumichrast*[15]); Guatemala, Dueñas[18], Coban[3] (*O. S. & F. D. G.*[4]); Costa Rica, San José (*v. Frantzius*[9]), Barranca (*Carmiol*[8]); Panama, Volcan de Chiriqui (*Arcé*[10]).

This species entirely takes the place of *G. philadelphia* in Mexico and Guatemala, where it is found during the winter months widely distributed over those countries, but chiefly hanging to the western or Pacific shore. In Southern Mexico it is found on both sides of the Cordillera; but in Guatemala, though it occurs at Coban[6], we most frequently met with it in the main range near Dueñas, where it was abundant at an elevation of about 5000 feet. Beyond Guatemala it passes to Costa Rica and Chiriqui, where it is found in conjunction with its eastern ally *G. philadelphia,* in which limited area only these species come into contact, and only here during the winter months; for in summer the treeless plains east of the Rocky Mountains separate them by a wide interval. The lines of migration of these two birds are very different, *G. philadelphia* taking a long flight over the ocean, *G. macgillivrayi* following in the main the course of the Cordillera.

Dr. Coues gives a good account of this species in his 'Birds of the Colorado Valley.' In the States it is found only in the Middle and Western provinces, going as far north as British Columbia. Its eastern range is determined by the limit of arboreal vegetation along the Rocky Mountains. Throughout this range it breeds, its nest being built of various materials, sometimes mosses and sometimes various soft fibrous materials, such as bark-strips and frayed-out plant-stems with fine grasses, and lined with slender rootlets[11]. The eggs are white, spotted and blotched with very dark brown, reddish brown, and other markings of a neutral tint.

The bird described but not named by Professor Baird in his 'Review of American Birds'[18], and attributed to a species of *Geothlypis* distinct from *G. macgillivrayi,* but unknown to him, would now appear to be *G. macgillivrayi* after all. Salvin examined the specimen at Washington in company with Mr. Ridgway in 1874; and this was the conclusion they came to. Similar specimens are in our collection obtained in precisely the same localities as fully plumaged birds, and associating with them.

Subfam. *ICTERIINÆ**.

ICTERIA.

Icteria, Vieillot, Ois. Am. Sept. i. pp. iii, 85 (1807) (type *Muscicapa viridis*, Gm.); Coues, B. Col. Vall. i. p. 316.

The position of this genus has long been a matter of doubt; and even now it cannot be said to have found a final resting-place, as much of its internal structure has yet to be examined and compared with that of the birds with which it has been associated. For a long time it was placed with the Vireonidæ, of which it was obviously a very abnormal member. Its relationship with the Tanagridæ has also been suggested. In placing it here, in the midst of the Mniotiltidæ, we follow, in a great measure, Prof. Baird's assignment of it, who dissents from its being placed in the Vireonidæ on account of its deeply cleft inner toe, the partially feathered tarsi, the lengthened middle toe, the slightly curved claws, the entire absence of notch or hook in the bill, and the short, rounded, nine-primaried wings. The genus comprises but a single species, divisible into two ill-defined races. This ranges across the southern part of the North-American continent during the summer months, and passes the winter season in Mexico and Guatemala.

1. Icteria viridis.

Turdus virens, Linn. Syst. Nat. ed. 10, i. p. 171[1].

Icteria virens, Baird, Rev. Am. B. i. p. 228[2]; Lawr. Ann. Lyc. N. Y. ix. p. 200[3]; Bull. U.S. Nat. Mus. no. 4, p. 17[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547[5]; v. Frantz. Journ. f. Orn. 1869, p. 294[6]; Baird, Brew. & Ridgw. N. Am. B. i. p. 307[7]; Coues, B. Col. Vall. i. p. 320[8].

Muscicapa viridis, Gm. Syst. Nat. i. p. 936[9].

Icteria viridis, Bp. P. Z. S. 1837, p. 111[10]; Cab. Journ. f. Orn. 1860, p. 403[11]; Scl. P. Z. S. 1864, p. 173[12]; Scl. & Salv. P. Z. S. 1870, p. 836[13]; Dugès, La Natur. i. p. 140[14].

Tanagra auricollis, Licht. Preis-Verz. mex. Vög. p. 2[15] (cf. J. f. Orn. 1863, p. 57).

Icteria velasquezi, Bp. P. Z. S. 1837, p. 117[16]; Scl. P. Z. S. 1856, p. 298[17]; 1859, pp. 363[18], 375[19]; Scl. & Salv. Ibis, 1859, p. 12[20]; Salv. Ibis, 1866, p. 202[21].

* The three subfamilies into which Dr. Coues (B. Col. Vall. i. p. 203) divides the Mniotiltidæ may be briefly characterized as follows:—

Mniotiltinæ (*anteà*, p. 109). Bill conical, slender; commissure but slightly curved; rictal bristles short or absent.

Icteriinæ. Bill compressed, high, very stout; commissure much curved; rictal bristles short.

Setophaginæ. Bill broad, flattened; commissure slightly curved; rictal bristles long, reaching far beyond the nostril.

Icteria longicauda, Lawr. Ann. Lyc. N. Y. vi. p. 4[22]; Baird, U.S. Bound. Surv. ii. Birds, p. 10[23] Rev. Am. B. i. p. 230[24].

Icteria longicaudata, Finsch, Abh. nat. Ver. z. Bremen, 1870, p. 331[25].

Icteria virens, var. *longicauda*, Lawr. Mem. Bost. Soc. N. H. ii. p. 271[26].

Supra griseo-olivacea, alis et cauda extus concoloribus; stria utrinque rictali et altera superciliari a naribus ducta albis, macula suboculari quoque alba; subtus gutture toto, pectore et subalaribus flavis, abdomine reliquo albo, hypochondriis fusco lavatis, rostro nigro (vestitu hiemali ad mandibulæ basin albicante), pedibus plumbeis. Long. tota 7·0, alæ 3·3, caudæ 3·3, rostri a rictu 0·75, tarsi 1·1. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. UNITED STATES, Eastern, Middle, and Western Provinces, Lower California[7 8].—MEXICO (*Deppe*[15], *Sallé*[17]), Mazatlan[25 26] and Tepic (*Grayson*[26]), Nuevo Leon (*Couch*[23]), Guanajuato (*Dugès*[14]), valley of Mexico (*White*[12], *le Strange*), State of Vera Cruz (*Sumichrast*[5]), Jalapa (*de Oca*[18]), Playa Vicente (*Boucard*[19]), Chihuitan, Santa Efigenia (*Sumichrast*[4]), Merida, Yucatan (*Schott*[3]); GUATEMALA[16 20], Retalhuleu, Volcan de Fuego, Savana Grande, Polochic valley, Coban and Choctum (*O. S. & F. D. G.*); HONDURAS, San Pedro (*G. M. Whitely*[13]); COSTA RICA[6] (*Hoffmann*[11]).

Through their adhesion to the names of the tenth edition of Linnæus's 'Systema Naturæ' by American authors, this bird now usually with them passes as *Icteria virens*. In Europe it is better known as *Icteria viridis*, Gmelin's later but to us more lawful appellation. Of other names bestowed upon it, *Tanagra auricollis*[15] seems certainly synonymous, as proved by Deppe's specimens in the Berlin Museum. The title *I. velasquezi*, by which Bonaparte[16] sought to distinguish the Guatemalan bird, also falls under the same category, the difference in the colour of the mandible being almost undoubtedly a seasonal feature. To the name *Icteria longicauda*[22], bestowed in 1853 by Mr. Lawrence upon the bird of Western North America, more consideration is due; for western specimens seem always to have a tail some four tenths of an inch longer than eastern ones, and the upper parts of the former are usually greyer in tint. For several years the two birds were considered quite distinct; but Dr. Cabanis, in 1860[11], united them, a step to which Prof. Baird subsequently demurred[2]. A few years afterwards, however[7], the two races were partially united as "varieties" of one species; and this is the position at present accorded to them[4 8]. We here treat them under one specific name, and its owner as a variable species, the tendency of the western birds being to have longer tails and greyer backs than those from the eastern portions of its range. As regards our territory, the eastern form seems to predominate, the western being only found, according to Dr. Finsch and Mr. Lawrence, in North-western Mexico[25 26].

In Southern Mexico *I. viridis* seems to be pretty generally distributed, spreading across the continent from the shores of the Pacific at Tehuantepec to the Gulf of Mexico. In Guatemala the same is the case, and we have records of its occurrence in

the neighbourhood of both oceans. It does not seem, as a rule, to seek the more elevated regions of Guatemala, though we have evidence of its presence as high as 6000 feet in the Volcan de Fuego, and at Coban, about 4300 feet above the sea. Southward of Guatemala it has barely been noticed—once only in Honduras, near San Pedro, by Whitely [13], and once in Costa Rica by Hoffmann [11]. The species is almost certainly only a winter visitant to Guatemala, and perhaps to Mexico, arriving in September and leaving again in the following spring; our birds were all procured at this season. As regards the colour of the bill, we may remark that black-billed birds have never, to our knowledge, occurred in Guatemala, but in Mexico they are of not infrequent occurrence. This character we take to be a seasonal one, as it is in some other birds. The black-billed Mexican birds may pass the summer in that country.

In the north *I. viridis* is a well-known bird, but a summer visitant, arriving in April and leaving again in September. In the Eastern province it is found from Florida to Massachusetts, and in the Middle and Western provinces from the Upper Missouri region to Colorado, Arizona, &c., and Lower California. Its habits are very fully described by American writers [8]. Its nest is composed of interwoven leaves, bark of the grape-vine, and stems of plants, and lined with fine, long, wiry stems and pine-needles [7]. The eggs are white with a pinkish blush, and speckled all over with rich reddish brown.

GRANATELLUS.

Granatellus, DuBus, Esq. Orn. sub tab. 24 (1850?); Bp. Consp. i. p. 312 (1850); Baird, Rev. Am. B. i. p. 230.

This is a very peculiar genus, both as to its form and colour. It has always been placed as an aberrant member of the Mniotiltidæ, though its alliance with such Tanagrine genera as *Nemosia* and *Tanagrella* has been suggested. Prof. Baird, whose general arrangement of the Mniotiltidæ we follow in the present work, considers its position to be near *Icteria*, a suggestion prompted by its stout bill and the feeble development of the rictal bristles. But there are many points of difference between *Granatellus* and *Icteria*, so much so that their juxtaposition cannot be considered as definitely settled. The bill in *Granatellus* is broad and high at the base and scarcely notched at the tip of the maxilla; the culmen and commissure are much curved, as well as the upper edge of the mandible. The nostrils are circular, situated at the distal end of the nasal fossa, the proximal end being covered with a membrane, up to which the nasal feathers do not reach, the nostril being thus completely exposed. The tarsi are comparatively short, and the wings shorter than the rounded tail, the feathers of which have rounded tips.

There are four strictly congeneric species in this genus, of which three are found in Mexico and the adjoining Tres Marias Islands, one of which extends its range to Yucatan and Guatemala. Beyond this point all trace of the genus disappears until we

come to the great affluent of the Amazons, the river Madeira, where *G. pelzelni* occurs, a species allied to those of Western Mexico. All the members of the genus appear to be very rare, *G. sallæi*, the least conspicuously coloured of them, being the commonest and having much the widest range.

a. *Capitis et cervicis lateres nigri; guttur album.*

1. Granatellus venustus.

Granatellus venustus, Du Bus, Esq. Orn. t. 24[1]; Bp. Consp. i. p. 312[2]; Scl. P. Z. S. 1864, p. 607, t. 37. f. 2[3]; Baird, Rev. Am. B. i. p. 231[4]; Lawr. Mem. Bost. Soc. N. H. ii. p. 270[5]; Bull. U.S. Nat. Mus. no. 4, p. 16[6].

Cærulescenti-plumbeus, fronte et capitis lateribus nigris torque pectorali nigro conjuntis; litura postoculari, gula et hypochondriis pure albis; abdomine medio rosaceo-rubro; cauda nigra, rectrice extima utrinque fere omnino alba, duabus proximis ad apices gradatim albis; rostro plumbeo; pedibus fuscis. Long. tota 5·4, alæ 2·47, caudæ rect. med. 2·9, rect. ext. 2·55, rostri a rictu 0·65, tarsi 0·77. (Descr. maris ex Sierra Madre, Colima, Mexico. Mus. Smiths. no. 30169.)

Hab. Mexico[2], Sierra Madre, Colima (*Xantus*[5 6]), Santa Efigenia, Tehuantepec (*Sumichrast*[7]).

This beautiful species is one of the rarest of Mexican birds, having a very restricted range in the states bordering the Pacific Ocean from Colima to Tehuantepec. The first (and for many years the only) known specimen was that in the Brussels Museum, named and figured by the late Vicomte Du Bus in his 'Esquisses Ornithologiques.' Whether this plate of this unfinished work was ever actually published is a matter of doubt; but a copy of it (numbered 34) was accessible to Bonaparte when he drew up his description of the bird in the 'Conspectus Avium'[2]; and another was furnished to Mr. Sclater, and copied in the 'Proceedings' of the Zoological Society for 1864[3]. An imperfect bird in the British Museum Mr. Sclater in 1859* referred to this species; but this identification he subsequently[3] withdrew in favour of *Granatellus pelzelni*.

The only specimen we have seen is that obtained by Xantus, which is now in the National Museum at Washington. Besides this, Prof. Sumichrast has also met with the species on the isthmus of Tehuantepec.

Of the habits of this bird nothing is recorded; but they probably resemble those of *G. francescæ* (next mentioned).

G. venustus may at once be distinguished from its allies by its conspicuous black pectoral crescent, not present in the other species. As regards the recorded colour of the iris, statements do not agree—Xantus describing it as *white*, and Sumichrast as *brown*. The latter colour agrees with that given of its allies *G. francescæ* and *G. pelzelni*.

* P. Z. S. 1859, p. 375.

2. Granatellus francescæ.

Granatellus francescæ, Baird, Rev. Am. B. i. p. 232[1]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 278[2]; Salv. Ibis, 1874, p. 307, t. 11[3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 270[4].

Similis præcedenti, sed cauda elongata et torque pectorali nigra nulla distinguenda. Long. tota 6·35, alæ 2·51, caudæ rect. med. 3·4, rect. ext. 2·8, rostri a rictu 0·61, tarsi 0·8. (Descr. maris ex Tres Marias insulis. Mus. Smiths. no. 37,312.)

♀ mari similis, colore rosaceo fere absente, capitis lateribus pallide fuscis nec nigro et albo ornatis, hypochondriis quoque fuscis nec albis distinguenda. (Descr. feminæ ex Tres Marias insulis. Mus. Smiths. no. 37,314.)

Hab. Mexico, Tres Marias islands (*Grayson*, *Forrer*).

This species, which seems restricted in its range to the Tres Marias islands, is a close ally of *G. venustus*, having the lateral tail-feathers tipped with white; but it lacks the black pectoral collar, so that the two species are easily distinguished.

The late Col. A. J. Grayson first procured specimens of the bird, those in the National Museum at Washington, of a pair of which we gave a drawing in 'The Ibis' for 1874. Mr. A. Forrer, who has recently visited these islands, also found it, and has sent us specimens of both sexes. Grayson's note on his discovery is as follows:—"This handsome little bird is one of the new species discovered by me in the Marias. I always met with it among the low underbrush in the dark recesses of the forest, hopping about among the decayed logs and brush near and sometimes on the ground busily searching for insects; at every move it has a peculiar way of jerking up and spreading its pretty fan-shaped tail, at the same time the head motionless and bent towards the ground, the wings recumbent, as if intensely looking for some little beetle or grub there concealed. Its notes are a feeble *t'cit, t'cit*. Its habits are solitary."

b. *Capitis et cervicis latera plumbea; guttur quoque concolor.*

3. Granatellus sallæi.

Setophaga sallæi, Bp. Compt. Rend. xlii. p. 957[1].

Granatellus sallæi, Scl. P. Z. S. 1856, p. 292, Aves t. 120[2]; 1858, p. 97[3]; 1859, p. 374[4]; Scl. & Salv. Ibis, 1860, p. 397[5]; Baird, Rev. Am. B. i. p. 232[6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[7].

Cærulescenti-plumbeus, litura postoculari et hypochondriis albis, gula dorso concolori, abdomine medio cum crisso læte rosaceo-rubris; rostro plumbeo, pedibus fuscis. Long. tota 5·2, alæ 2·4, caudæ 2·3, rostri a rictu 0·5, tarsi 0·7. (Descr. exempl. ex Cahabon, Guatemala. Mus. nostr.)

♀ fuscescenti-plumbea, litura postoculari rufescente, subtus cinnamomeo-rufescens, gutture et ventre medio albicantibus. (Descr. feminæ ex Guatemala. Mus. nostr.)

Hab. Mexico[2], Cordova (*Sallé*[1 2]), Potrero (*Sumichrast*[7]), Playa Vicente (*Boucard*[4]), Yucatan (*Gaumer*); Guatemala, Cahabon[5] (*O. S. & F. D. G.*), near Tactic (*Sarg*).

This pretty species, one of M. Sallé's discoveries in Southern Mexico, was described by Bonaparte as well as by Mr. Sclater in 1856, and called after its captor. The male alone came under M. Sallé's notice; but the female was afterwards discovered by

M. Boucard at Playa Vicente, and described by Mr. Sclater in one of his lists of Mexican birds[4]. Since then a few specimens have been obtained from the eastern parts of Southern Mexico, where Prof. Sumichrast tells us it is an inhabitant of the hot region and the warmer parts of the temperate region, he himself having obtained it at Potrero, near Cordova, at an elevation of nearly 2000 feet above the sea. We have lately received a specimen from Northern Yucatan, showing a considerable extension of its range to the eastward. In Guatemala it appears to be as rare a bird as it is in Mexico, but few examples of it having come under our notice. These all came from different parts of Vera Paz, one of them from the vicinity of Cahabon, less than 1000 feet above the sea. Mr. Sarg also informs us that it has been obtained near Tactic, a village lying at an elevation of about 4500 feet. We never actually observed the bird ourselves; and no account of its habits has been published.

Subfam. *SETOPHAGINÆ**.

CARDELLINA.

Cardellina, DuBus, Esq. Orn. t. 25 (1850?). (Type *C. amicta*, DuBus, = *Muscicapa rubrifrons*, Giraud.)

If we exclude the two species *C. rubra* and *C. versicolor* from the genus *Cardellina*, in which they have usually been placed, a single species, *C. rubrifrons*, remains as its sole representative. This is a peculiar bird, with a strong almost Parine bill, the culmen of which is curved throughout. The rictal bristles are well developed, reaching beyond the nostrils. The wings are long and pointed, the second, third, and fourth quills being nearly equal and longest. The tail is nearly even, and shorter than the wings. The feet are small, and the tarsi short. Compared with *Ergaticus*, the bill is much stouter, the wings longer, and the tarsi shorter; and besides these characters there is a marked difference in the style of the coloration of the plumage. The range of the genus is that of its single species given below.

1. Cardellina rubrifrons.

Muscicapa rubrifrons, Giraud, Sixteen B. Texas, t. 7. f. 1[1].

Cardellina rubrifrons, Scl. P. Z. S. 1855, p. 66[2]; 1858, p. 299[3]; 1859, p. 374[4]; Baird, Rev. Am. B. i. p. 264[5]; Salv. Ibis, 1866, p. 192[6]; Coues, B. Col. Vall. i. p. 331[7].

Basileuterus rubrifrons, Scl. P. Z. S. 1859, p. 363[8].

Cardellina amicta, DuBus, Esq. Orn. t. 25[9]; Bp. Consp. i. p. 312[10].

Parus erythropis, Licht., fide Bp. Consp. i. p. 312[11].

Supra cinerea; nucha, uropygio et corpore subtus albis, illo vix rosaceo tincto; pileo postico et capitis lateribus posticis nigris; fronte, loris, ciliis et gula tota læte rosaceo-rubris, alis albo unifasciatis; rostro fusco, pedibus corylinis. Long. tota 5·0, alæ 2·7, caudæ 2·3, tarsi 0·75, rostri a rictu 0·55.

---

* *Anteà*, p. 157.

♀ mari similis, colore rosaceo paulo minus distincto. (Descr. maris et feminæ ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. North America, S. Arizona[7].—Mexico (*Sallé*[5], *le Strange*), Jalapa (*de Oca*[8]), La Parada[3], Cinco Señores[4] (*Boucard*); Guatemala, Volcan de Fuego and Totonicapam (*O. S. & F. D. G.*[6]).

The first published account of this pretty species is that by J. P. Giraud, who gave a figure of it in his 'Descriptions of Sixteen New Species of North-American Birds collected in Texas'[1]; but it was probably discovered some ten years previously by Deppe in Southern Mexico, as the specimens named by Lichtenstein *Parus erythropis* in the Berlin Museum[11] were obtained, as were so many other Mexican birds, by that energetic collector. Another name, *Cardellina amicta*, was subsequently bestowed upon it by the late Vicomte DuBus, who figured it in his 'Esquisses Ornithologiques'[9]; and a description of it under this title was given by Bonaparte in his 'Conspectus'[10]. All these names are now acknowledged to belong to *C. rubrifrons*.

Giraud, as already stated, inserts *C. rubrifrons* as a bird of Texas; but whether it really occurs in this border State is very questionable. In Southern Arizona, however, the fact of its presence has been established by Mr. W. H. Henshaw, who found it in several places in July 1874, when young birds were also observed. Southward of this point we have no record of its occurrence until we reach Southern Mexico, where it has been observed in the higher districts by several ornithologists. In Guatemala it is restricted to the higher regions of the main cordillera and the forests of the volcanos. We never observed it ourselves below an elevation of 7000 feet in the forest-belt of the Volcan de Fuego, where it was common, and in the mountains above Totonicapam, at an elevation of about 10,000 feet. In the former district we found it in damp forests of mixed trees, and in the latter in pine-forests, its resort in Arizona, according to Mr. Henshaw.

In its habits it somewhat resembles the restless Paridæ; but it takes insects on the wing and jerks its tail like a *Setophaga*.

In Southern Mexico and Guatemala *C. rubrifrons* is probably resident throughout the year, though we observed it only during the dry winter months, the places frequented by it during the rainy season being not easily accessible. In Arizona it may be migratory; but on this point our information is incomplete.

The young have been described by Mr. Henshaw[7]; but its nest and eggs have not yet been met with.

ERGATICUS.

Ergaticus, Baird, Rev. Am. B. i. pp. 237, 264 (1865). (Type *Setophaga rubra*, Sw.) Used as a subgenus.

Ergaticus, Scl. & Salv. Nomencl. Av. Neotr. p. 11.

Though Prof. Baird went so far as to provide a subgeneric name for the following

species, he did not use it in a full generic sense, but left them in *Cardellina*, following previous custom.

The slenderer bill, the greater development of the rictal bristles, and the shorter and more rounded wings of *Ergaticus*, as compared with *Cardellina*, as well as the peculiarity of the style of its coloration, we think entitle the former to full generic rank; and we thus treated it in the 'Nomenclator Avium Neotropicalium.'

Two species constitute this genus, one of which is peculiar to the uplands of Mexico, the other to similar districts in Guatemala.

1. **Ergaticus ruber.**

Setophaga rubra, Sw. Phil. Mag. new ser. i. p. 368[1]; Bp. P. Z. S. 1837, p. 118[2]?
Cardellina rubra, Scl. P. Z. S. 1856, p. 292[3]; 1858, p. 299[4]; 1859, pp. 363[5], 374[6]; 1864, p. 173[7], Baird, Rev. Am. B. i. p. 264[8]; Dugès, La Natur. i. p. 140[9]; Sumichrast, M. Bost. Soc. N. H. i. p. 546[10]; Finsch, Abh. nat. Ver. z. Bremen, 1870, p. 329[11].
Sylvia miniata, Lafr. Mag. Zool. 1836, cl. ii. t. 54[12].
Parus leucotis, Giraud, Sixteen B. Texas, t. 4. f. 1[13].
Sylvia argyrotis, Ill., fide Bp. Consp. i. p. 312[14].

Ruber, alis caudaque fuscis rubro marginatis, genis et subalaribus sericeo-albis; rostro et pedibus pallide corylinis. Long. tota 4·4, alæ 2·4, caudæ 2·4, tarsi 0·7, rostri a rictu 0·5. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)
♀ mari similis.
Juv. cinnamomeo-fuscus rosaceo vix tinctus, genis sericeo-griseis. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. Mexico, Mazatlan (*Grayson*[11]), Valladolid (*Bullock*[1]), valley of Mexico (*White*[7], *le Strange*, *Dugès*[9]), Mirador (*Sartorius*[8]), Orizaba (*Sumichrast*[8]), alpine region of Vera Cruz (*Sumichrast*[10]), El Jacale (*Sallé*[3]), Jalapa (*de Oca*[5]), Llano verde[6], Totontepec[6], and La Parada[4] (*Boucard*), Oaxaca (*Fenochio*).

This species was first described by Swainson, in 1827, from a specimen sent from Mexico by Bullock[1]; but it is quite possible that examples of the same bird, called *Sylvia argyrotis* by Illiger, in the Berlin Museum, are of still older date. Lafresnaye, who seems to have overlooked Swainson's short but important paper, in 1836 redescribed and figured the bird under the name of *Sylvia miniata*, using the title Swainson had chosen for the *Setophaga* which now stands as *S. miniata*. Again, in 1840 Giraud figured it, in his 'Descriptions of Sixteen New Species of North-American Birds from Texas,' as *Parus leucotis*, a name certainly applicable to *E. ruber*; but the locality "Texas" remains as yet unconfirmed. In 1837 Bonaparte, using Swainson's name, applied it to a bird said to have been brought from Guatemala by Colonel Velasquez[2]. This, we should have thought, would most probably have been the next species, *E. versicolor*; but the description "rubra, alis caudaque fuscis, genis albo sericeis," points rather to *E. ruber* than to *E. versicolor*. We hesitate, however, to admit Guatemala within the range of *E. ruber*.

In Mexico this species is characteristic of the alpine regions, being common at elevations ranging between 6500 and 10,000 feet. Prof. Sumichrast speaks of it as frequently met with in the pine-woods, which it enlivens by the brilliancy of its plumage and the graceful vivacity of its movements [10]. Though most collections from Southern Mexico contain specimens, we have no further account of its habits, nor is any thing known of its nidification.

2. **Ergaticus versicolor.**

Cardellina versicolor, Salv. P. Z. S. 1863, p. 188, t. 24. f. 1 [1]; Ibis, 1866, p. 192 [2]; Baird, Rev. Am. B. i. p. 265 [3].

Ergaticus versicolor, Scl. & Salv. Nomencl. Av. Neotr. p. 11 [4].

Ruber, uropygio et abdomine medio paulo dilutioribus; capite toto cum collo et pectore argentescenti-rubris; alis et cauda fuscis rubro marginatis, subalaribus albis; rostro nigricante, pedibus corylinis. Long. tota 4·5, alæ 2·4, caudæ 2·3, tarsi 0·7, rostri a rictu 0·5. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

♀ mari similis.

Hab. GUATEMALA, Volcan de Fuego [1], Sololá, Totonicapam [1], and Chilasco [1] (*O. S. & F. D. G.*).

The first specimen we obtained of this pretty species was shot during an excursion to the forests of the Volcan de Fuego, when we were staying at Dueñas, in October 1861. It was found in a patch of alder trees on the slopes of the mountain, at an elevation of about 7000 feet. We subsequently met with it in the same forests, but usually at a greater altitude, as high as about 10,000 feet, where the mixed forest terminates and the pines commence. It frequents the lower vegetation rather than the tops of the forest trees. It searches diligently for insects much after the manner of a *Setophaga*; but it occasionally remains at rest on a twig, its brilliant red plumage showing conspicuously amongst the green foliage of the surrounding trees. Of its nidification nothing is as yet known. Besides meeting with *E. versicolor* in the Volcan de Fuego we also found it in several other districts of Guatemala, such as the neighbourhood of Sololá, at an elevation of about 7000 feet, and in the mountains above Totonicapam as high as 10,500 feet above the sea. In both these places it frequented pine-forests. *E. versicolor* has never to our knowledge been obtained by the Coban bird-hunters; but we ourselves met with it in the high mountainous district of Chilasco, at an elevation of about 6000 feet. Here, as in the Volcan de Fuego, it resorted to the upland forests rather than the pines.

MYIODIOCTES.

Myiodioctes, Audubon, Synopsis, p. 48 (1839). (Type *Motacilla mitrata*, Gm.)

The members of this genus have the rictal bristles well developed, but not so much so as in *Setophaga*. The bill is broad, and depressed rather than flattened, the tail

nearly even and of about the same length as the wings. Three species are included in *Myiodioctes* at the present time; but a fourth was described by Wilson as *Muscicapa minuta*, which has not since been recognized. All are of migratory habits, passing the breeding-season in North America and the winter in Mexico and Central America, one only at this season migrating as far south as Ecuador.

1. Myiodioctes canadensis.

Muscicapa canadensis, Linn. Syst. Nat. i. p. 327 [1].

Myiodioctes canadensis, Scl. P. Z. S. 1854, p. 111 [2], 1855, p. 143 [3]; Scl. & Salv. Ibis, 1859, p. 11 [3]; Lawr. Ann. Lyc. N. Y. vii. p. 468 [4], ix. p. 95 [5]; Baird, Rev. Am. B. i. p. 239 [6]; Dresser, Ibis, 1865, p. 478 [7]; v. Frantzius, J. f. Orn. 1869, p. 294 [8]; Baird, Brew. & Ridgw. N. Am. B. i. p. 320 [9]; Coues, B. Col. Vall. i. p. 323 [10].

Euthlypis canadensis, Cab. J. f. Orn. 1860, p. 326 [11].

? *Myiodioctes cærulescens* (Gm.), Lawr. Bull. U. S. Nat. Mus. no. 4. p. 16 [12].

Supra cinereus, pilei plumis medialiter nigris; fronte, loris, cervicis lateribus et maculis pectoralibus nigris; stria utrinque ante oculos, oculorum ambitu, gula et abdomine toto flavis, crisso albido; rostro corneo, mandibulæ basi et pedibus carneis. Long. tota 5·0, alæ 2·6, caudæ 2·2, tarsi 0·75, rostri a rictu 0·58.

♀ mari similis, sed supra fuscescentior et maculis fuscis nec nigris distinguenda. (Descr. maris et feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. Eastern North America, from Lake Winnipeg southwards [9 10], Texas [7].—Mexico?? (*Verreaux* [6]), ?Bario, Guichicovi, Isth. of Tehuantepec (*Sumichrast* [12]); Guatemala [3], Retalhuleu, Alotenango, Dueñas, Coban (*O. S. & F. D. G*); Costa Rica [8], highlands (*Hoffmann* [11]), Dota Mountains (*Carmiol* [5]); Panama, line of railway (*M'Leannan* [4]). —Colombia [3]; Ecuador [2].

The presence of this species in Mexico is not fully established, though we have little doubt that it was this bird that Mr. Lawrence called *Myiodioctes cærulescens* in his list of Prof. Sumichrast's Tehuantepec birds. The other Mexican reference, resting as it does on the doubtful authority of Verreaux, requires further confirmation, as the bird has hitherto escaped the notice of all the many good collectors who have worked in Southern Mexico. In Guatemala *M. canadensis* is one of the well-known winter visitants, where it is to be found from September to the following spring at elevations ranging from 800 to 5000 feet above the sea, its chief resort being the second-growth woods. In Costa Rica and in the Isthmus of Panama it is also known as a winter immigrant; but it passes at this season far beyond the limits of our fauna, being found in Colombia [3] and in the province of Loxa on the southern confines of Ecuador [2].

In North America it is known as a bird of passage in the eastern States during its spring and autumn migrations. A few stop to breed in the State of New York and in Massachusetts, the rest northward of these States; but the extension of the northern range of the species is not ascertained, but probably coincides with the limit of trees, or lat. 54° N. [10].

It builds about the beginning of June, making its nest in a tussock of grass in swampy woods, concealed by the surrounding rank vegetation. The nest is usually composed of pine-needles interwoven with strips of bark and dry leaves, grasses, &c., the lining consisting of fine black fibrous roots. The eggs, five in number, are of a clear white, dotted and blotched with spots of brown, purple, and violet, chiefly grouped in a wreath round the larger end [9].

For general references to this species Dr. Coues's work must be consulted [10].

2. **Myiodioctes mitratus.**

Motacilla mitrata, Gm. Syst. Nat. i. p. 977 [1].

Myiodioctes mitratus, Scl. P. Z. S. 1856, p. 291 [2]; Scl. & Salv. Ibis, 1859, p. 11 [3]; P. Z. S. 1864, p. 347 [4]; Taylor, Ibis, 1860, p. 110 [5]; Lawr. Ann. Lyc. N. Y. viii. p. 6 [6], ix. p. 200 [7]; Baird, Rev. Am. B. i. p. 239 [8]; Dresser, Ibis, 1865, p. 478 [9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [10]; Baird, Brew. & Ridgw. N. Am. B. i. p. 314 [11]; Coues, B. Col. Vall. i. p. 324 [12]; Gundl. Orn. Cub. p. 71 [13].

Supra læte olivaceus, alis et cauda fuscis extus olivaceo limbatis, capite cum gula nigris; fronte late, capitis lateribus et abdomine toto læte flavis; rectricibus tribus utrinque externis pro majore parte intus albis; rostro nigricante, mandibulæ basi pallida; pedibus carneis. Long. tota 5·0, alæ 2·6, caudæ 2·4, tarsi 0·75, rostri a rictu 0·6. (Descr. exempl. ex Choctum, Guatemala. Mus. nostr.)

♀ mari similis, coloribus nigris absentibus, fronte et capitis lateribus magis olivaceis et gula abdomini concolori. (Descr. exempl. ex Belize, Brit. Honduras. Mus. nostr.)

Hab. North America, eastern provinces of United States [11 12], Texas [9].—Mexico, Cordova (*Sallé* [2]), Orizaba (*Sumichrast* [10]), Merida, Yucatan (*Schott* [7]), Izalam (*Gaumer*); British Honduras, Belize (*O. S. & F. D. G.*, *Blancaneaux*); Guatemala [3], Retalhuleu, Dueñas, Coban, Choctum (*O. S. & F. D. G.*); Honduras, Comayagua (*Taylor* [5]); Panama, line of railway (*M'Leannan* [4 6]).—Cuba [13]; Jamaica [8].

Of this species little is known in Mexico, as it has as yet only been found in the State of Vera Cruz near Cordova [2] and Orizaba [10], and it does not seem to reach any of the States bordering the Pacific Ocean. It occurs, however, in Yucatan [7]; and in Guatemala it appears to be pretty generally distributed during the winter months, as we obtained specimens in the lowlands of both coasts, in Alta Vera Paz, and in the highlands near Dueñas. In Honduras Mr. Taylor only obtained a single specimen in an orange-grove at Comayagua [5]. From Nicaragua and Costa Rica we have no tidings of it; but on the line of the Panama railway M'Leannan found it, and sent specimens both to Mr. Lawrence [6] and ourselves [4].

In the continent of South America it is not known to occur; but in Cuba Dr. Gundlach tells us [13] that he has observed it in certain years in the month of April. It is also reported from Jamaica [8] and Bermuda [11]. The winter abode, therefore, of this species would appear to be chiefly restricted to South-eastern Mexico, Yucatan, and Guatemala, beyond which a few birds wander as far as the Isthmus of Panama. It is

probably these latter that stop at Cuba and Jamaica in their northward journey in the month of April. In Guatemala it resorts chiefly to the thick second-growth woods, keeping to the underwood rather than the larger trees. It is of restless habits, constantly jerking open its wings and tail.

The summer quarters of *M. mitratus* are restricted to the more southern of the eastern States; and here it breeds, making a nest in oak bushes four or five feet from the ground. This is constructed outwardly of dry leaves and coarse grass, and lined with horse-hair, pine-leaves, and slender grass. The eggs, usually four in number, are described as white, with spots of a fine red, and a few markings of a subdued purple [11].

3. **Myiodioctes pusillus.**

Muscicapa pusilla, Wils. Am. Orn. iii. p. 103, t. 26. f. 4 [1].

Myiodioctes pusillus, Scl. P. Z. S. 1856, p. 291 [2]; 1858, p. 299 [3]; 1859, pp. 363 [4], 374 [5]; Scl. & Salv. Ibis, 1859, p. 11 [6], Baird, U. S. Bound. Surv. ii. Birds, p. 10 [7]; Rev. Am. B. i. p. 240 [8]; Cab. J. f. Orn. 1860, p. 325 [9]; Dresser, Ibis, 1865, p. 478 [10]; Lawr. Ann. Lyc. N. H. ix. p. 95 [11]; Mem. Bost. Soc. N. H. ii. p. 270 [12]; Frantz. J. f. Orn. 1869, p. 294 [13]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [14]; Salv. P. Z. S. 1870, p. 183 [15]; Dugès, La Natur. i. p. 140 [16]; Baird, Brew. & Bidgw. N. Am. B. i. p. 317 [17]; Coues, B. Col. Vall. i. p. 326 [18].

Sylvia petasodes, Licht. Preis-Verz. mex. Vög. p. 2 (cf. J. f. Orn. 1863, p. 57 [19]).

Motacilla pileolata, Pall. Zoogr. Rosso-As. i. p. 497 [20].

Myiodioctes pusillus, var. *pileolatus*, Baird, Brew. & Ridgw. N. Am. B. i. p. 319 [21]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 16 [22].

Supra olivaceus, alis et cauda fuscis olivaceo extus limbatis; capite summo nitente nigro; fronte, capitis lateribus et corpore toto subtus flavis, hypochondriis olivaceo indutis; rostro maxilla cornea, mandibula carnea; pedibus pallide coryllinis. Long. tota 4·4, alæ 2·2, caudæ 2·0, tarsi 0·73, rostri a rictu 0·45. (Descr. maris ex Coban, Guatemala. Mus. nostr.)

♀ mari similis, pileo dorso concolori.

Hab. North America generally, Arizona [18], Texas [10].—Mexico (*Sallé* [2]), Monterey (*Couch* [7]), Guadalajara and Tepic (*Grayson* [12]), Colima (*Xantus* [12]), Guanajuato (*Dugès* [16]), Santuario (*Deppe* [21]), Mirador (*Sartorius* [8]), Velasco and Apam (*le Strange*), Jalapa (*de Oca* [4]), Orizaba (*Sumichrast* [14]), Oaxaca (*Fenochio*), La Parada [3], Totontepec [5] and Villa Alta [5] (*Boucard*), Guichicovi (*Sumichrast* [22]); Guatemala, Dueñas [6], San Gerónimo, Coban (*O. S. & F. D. G.*); Costa Rica, Barranca and Grecia (*Carmiol* [11]), San José [11] and Volcan de Poas [13] (*v. Frantzius*), Irazu (*Rogers*), Orosi (*Kramer*); Panama, Volcan de Chiriqui (*Arcé* [15]).

Mr. Ridgway [21] recognizes two races of this bird:—one inhabiting the Pacific coast-region of North America, and southwards to Western Mexico and Costa Rica, to which he applies Pallas's name *pileolatus* [20]; and the other Eastern North America and Mexico, Guatemala and Costa Rica, to which Wilson's name *pusillus* [1] is applicable. The former is distinguished by the greater richness of the yellow of its plumage, the

forehead and chin being almost orange, by the greater brightness of the steel-blue gloss of the cap, and other minor characters.

Dr. Coues [18], remarking on the distribution of these varieties, says that *M. pileolatus* is not restricted to the Pacific coast region, and that his Arizona specimens are precisely like Pennsylvanian ones. He therefore places both varieties under the same name; and we follow him in so doing; for though we recognize both races in our Central-American series of specimens, we are, like him, unable to trace their distribution definitely, and consequently leave the species undivided. If any thing, the so-called western race is most prevalent in Costa Rica and Panama—that is, at the extreme southern limit of the range of the species. This is contrary to what we usually find; for when two species or races inhabit the northern continent, it is the eastern and not the western form that has the most extended range in the winter season.

Myiodioctes pusillus is a well-known Mexican and Guatemalan species in the winter months, being distributed all over the country, from near the sea-level to an altitude of 5000 or 6000 feet. At Dueñas we used frequently to meet with it in second-growth woods and in willow trees on the banks of the Rio Guacalate. In Costa Rica Dr. v. Frantzius met with it between August and March, and as high as 7000 feet in the Poas volcano. Some of Carmiol's specimens were obtained as late as April [13].

In North America *M. pusillus* is chiefly known as a bird of passage, its breeding-quarters extending northwards of Massachusetts, except in the higher mountains of the west [18]. But little, however, has been recorded of its breeding-habits, and this long ago by Audubon and Nuttall, the former naturalist having described a nest he found in Labrador, and the latter one from Oregon. That this species breeds in the higher mountains of Nevada, Colorado, and Arizona there can be no doubt, as the testimony of Messrs. Ridgway and Henshaw, and also of Dr. Coues, indicates that it is found during the summer months in these regions; but as yet no nests have been discovered there [18]. The eggs are described as white, finely sprinkled round the larger end with brownish red and lilac [17].

BASILEUTERUS.

Basileuterus, Cabanis in Schomb. Reisen Guiana, iii. p. 666 (1848). (Type "*Sylvia vermivora*, Vieillot," auct., = *Basileuterus auricapillus* (Sw.) apud Berlepsch, Ibis, 1881, p. 240.)

In having a narrow nearly even tail of about the same length as the wings, and a broad depressed bill with well-developed rictal bristles, this genus resembles *Myiodioctes*; but the wings are more rounded, and the first primary shorter; the culmen, too, is more curved. Moreover all the members of *Myiodioctes* are of migratory habits, and spend the summer in North America, and the winter in Central America; whereas the species of *Basileuterus* are, so far as we know, of non-migratory habits, all belonging to the Neotropical region.

Basileuterus is the largest genus of the Mniotiltidæ, containing more species than

Pl 13

even *Dendræca*. We are now acquainted with twenty-seven species, which are widely distributed throughout Tropical South America, from South Brazil to Mexico. The countries including the Andes possess the greater proportion of the species; but Central America is well represented by eight species, only two of which (*B. bivittatus* and *B. mesochrysus*) have been found outside our limits. Mexico has three species—*B. culicivorus*, *B. belli*, and *B. rufifrons*; Guatemala the same number, *B. delattrii* taking the place of *B. rufifrons*. Costa Rica and Panama have five species—the two southern ones *B. bivittatus* and *B. mesochrysus*, *B. melanogenys* and *B. leucopygius* both peculiar, and *B. culicivorus* in common with Mexico and Guatemala.

These eight species seem divisible into three groups, all of which are represented in South America, where others are also found. Prof. Baird has divided the genus into three subgenera, which he calls *Basileuterus*, *Idiotes*, and *Myiothlypis*; but the lines of demarcation between them are so indefinite that we prefer to retain the use of the name *Basileuterus* in its wide sense, and to group the species in sections.

a. *Pileus medius flavus aut aurantiacus, utrinque nigro marginatus; genæ nec nigræ nec castaneæ.*

1. Basileuterus bivittatus.

Muscicapa bivittata, d'Orb. & Lafr. Syn. Av. i. p. 51[1].

Muscicapara bivittata, d'Orb. Voy. Am. Mér. Ois. p. 324[2].

Basileuterus bivittatus, Scl. P. Z. S. 1859, p. 137[3]; 1860, p. 85[4]; Salv. Ibis, 1870, p. 108[5]; P. Z. S. 1870, p. 183[6]; Scl. & Salv. P. Z. S. 1879, p. 594[7].

Myiodioctes tristriatus, Tsch. Faun. Per. p. 193, t. 12. f. 1[8].

Basileuterus melanotis, Lawr. Ann. Lyc. N. Y. ix. p. 95[9]; Salv. Ibis, 1869, p. 313[10]; v. Frantzius, J. f. Orn. 1869, p. 294[11].

Supra olivacea, pileo medio aurantiaco-cinereo utrinque late nigro marginato, superciliis sordide albis, loris posticis et regione parotica nigris; subtus sordide flavicante, hypochondriis nigris olivaceo indutis; rostri maxilla corylina, mandibula albicante; pedibus pallide corylinis. Long. tota 5·0, alæ 2·5, caudæ 2·3, rostri a rictu 0·6, tarsi 0·8. (Descr. exempl. ex Costa Rica. Mus. nostr.)

Hab. Costa Rica (*Van Patten*), Cervantes (*J. Carmiol*[9]), Birris (*v. Frantzius*[9]); Panama, Cordillera del Chucu (*Arcé*[5 6]).—Colombia[5]; Ecuador[3 4]; Peru[8]; Bolivia[1 2 7].

This southern species is by no means common in Central America, where it has been found in Costa Rica and in the State of Panama. The first Costa-Rica specimens which came into Mr. Lawrence's hands were described by him as a new species under the name *B. melanotis*[9]; but on receipt of specimens from the State of Panama we were enabled to compare them with South-American examples attributed to *B. bivittatus*, and found them not separable[5]. Since then we have obtained a Costa-Rica example and a much more extensive series from South America, including two from Simacu in Bolivia[7], the country of the true *B. bivittatus*. In this series there is a certain amount of variation in the colouring of the central portion of the vertex, and in the amount of black

behind the eye. Specimens from Ecuador and Venezuela have the black postocular patch the smallest, and the palest and greyest crown. Costa-Rica and Panama examples agree very closely with Colombian and Bolivian; but the crown is rather more tinged with reddish orange. The difference is too slight to justify the separation of these birds; and we prefer to look upon *Basileuterus bivittatus* as a widely ranging somewhat variable species. Its range in altitude is probably not great, but restricted to about 3000 or 4000 feet above the sea-level. As we have never yet received specimens from low-lying land, the forests of mountain-slopes are its home. Fraser, who obtained specimens at Nanegal (4000 feet)[4] and elsewhere, says[3] that the irides are white, the bill nearly black, the legs and feet flesh-colour, and that it is a pretty songster. D'Orbigny, who found it at Carcuata in Bolivia, says that it inhabits the wooded ravines of the eastern cordillera of La Paz, and that its habits somewhat resemble those of the Tits (Paridæ). Tschudi, who met with it in the sugar-plantation of San Pedro near Lurin, Peru, says that it has a short, intermittent, but loud song. Of its habits in Central America we have nothing to record; several of our references given above[10 11] merely refer to Mr. Lawrence's description of *B. melanotis*.

2. **Basileuterus culicivorus.**

Sylvia culicivora, Licht. Preis-Verz. mex. Vög. p. 2; cf. J. f. Orn. 1863, p. 57[1].

Basileuterus culicivorus, Cab. Mus. Hein. i. p. 17[2]; Bp. Consp. i. p. 313[3]; Baird, Rev. Am. B. i. p. 245[4]; Lawr. Ann. Lyc. N. Y. ix. p. 95[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[6]; Salv. P. Z. S. 1870, p. 183[7].

Muscicapa brasieri, Giraud, Sixteen B. Texas, t. 6. f. 2[8].

Basileuterus brasieri, Scl. P. Z. S. 1855, p. 66[9]; 1856, p. 292[10]; 1859, p. 374[11]; Scl. & Salv. Ibis, 1860, p. 274[12].

Supra olivaceo-cinereus, pileo medio sordide aurantiaco-flavo, utrinque late nigro marginato, capitis lateribus olivaceis cinereo vix tinctis, superciliis indistinctis flavido-olivaceis, ciliis ipsis flavis, loris pone oculos nigris; subtus flavus, hypochondriis olivaceo indutis; rostro corylino, pedibus pallide carneis. Long. tota 5·0, alæ 2·4, caudæ 2·0, rostri a rictu 0·52, tarsi 0·76. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Obs. Avis ex Costa Rica et Panama pileo medio paulo magis aurantiaco et dorso olivascentiore forsan distinguenda.

Hab. Mexico, Jalapa (*Deppe*[1 2 3], *Höge*), Cordova (*Sallé*[10]), temperate region of Vera Cruz (*Sumichrast*[6]), Teotalcingo (*Boucard*[11]); Guatemala, Volcan de Fuego[12], Volcan de Agua, Coban, Khamkal, Choctum, and road from Cahabon to San Luis (*O. S. & F. D. G.*); Costa Rica, Barranca, Guaitil, Grecia and Dota Mountains (*Carmiol*[5]); Panama, Volcan de Chiriqui, Calovevora[7] (*Arcé*).

Though many of the sixteen birds described as from Texas by Giraud have been found within the borders of the United States, *B. culicivorus* (included by that author as *B. brasieri*) is not amongst them, and its Texan habitat remains to be confirmed. Its northern range does not, so far as we know at present, extend beyond the temperate

regions of Southern Mexico, where it has been noticed by many collectors from Deppe to the present time. In Guatemala it is also an inhabitant of the temperate forests of both coasts, being abundant in the Volcan de Fuego as high as 6500 feet, and in Vera Paz between 4500 and 1500 feet. We always found it in humid forest searching for its food amongst the leaves, twigs, and bark of the stems of the trees, its habits being much like those of the Mniotiltidæ in general. It does not occur beyond the spurs of the higher mountains of the State of Panama, being absent from the line of railway, and its place taken by allied species in the southern continent.

As indicated above, southern specimens are more olivaceous on the back, and have the middle of the vertex deeper orange. These differences have already been noticed by Prof. Baird [4], who suggests that they may be merely seasonal, adding at the same time that they indicate a closer relationship between *B. culicivorus* and *B. bivittatus* than usually admitted, and that these birds may ultimately be referred to that species. The absence of the distinct dark mark behind the eye separates the former from *B. bivittatus*; and it only remains to consider the relationship of the two Central-American races of *B. culicivorus*, the Mexican and Guatemalan and the Costa-Rican and Veraguan. The distinctions alluded to are of no great amount, and, moreover, not quite constant, inasmuch as the colour of the crown in Guatemalan examples varies from yellow to orange, apparently without reference to sex, and it is only the average colour of southern specimens that is deeper orange. The colour of the upper surface of Costa-Rica examples is hardly sufficiently different to justify their bearing a distinct name.

In his note on Giraud's 'Birds of Texas,' Mr. Sclater, while recognizing the identity of *Muscicapa brasieri* of Giraud, and *Sylvia culicivora*, Licht., says that the bird should be called *Basileuterus brasieri* (Giraud); and it thus passed for several years. In giving this decision, however, he overlooked Lichtenstein's short but recognizable description of his *S. culicivora* [1], published in 1830, the latter name having some ten years' priority.

b. *Pileus obscurus inornatus, supercilium fulvum.*

3. **Basileuterus leucopygius.**

Basileuterus leucopygius, Scl. & Salv. Nomencl. Av. Neotr. p. 156 [1].
Basileuterus semicervinus, Lawr. Ann. Lyc. N. Y. vii. p. 322 [2] (nec Sclater).
Balileuterus uropygialis, Scl. & Salv. P. Z. S. 1864, p. 347 [3]; Baird, Rev. Am. B. i. p. 246 [4]; Lawr. Ann. Lyc. N. Y. viii. p. 180 [5]; ix. p. 95 [6]; Salv. P. Z. S. 1867, p. 136 [7]; 1870, p. 183 [8]; Ibis, 1872, p. 313 [9] (nec Sclater).

Saturate fuscescenti-olivaceus, pileo, alis et caudæ apice nigricantibus; alarum marginibus dorso concoloribus; subtus medialiter albidus vix cervino lavatus, pectore et hypochondriis fusco perfusis; uropygio et caudæ dimidio antico cervino-albidis; rostro corneo, pedibus corylinis. Long. tota 5·2, alæ 2·25, caudæ 2·3, rostri a rictu 0·6, tarsi 0·9. (Descr. maris ex Santa Fé, Panama. Mus. nostr.)

Hab. NICARAGUA, Greytown (*Holland* [5 8]); COSTA RICA (*Carmiol* [1]), Tucurriqui (*Arcé* [7]), Angostura and Juiz (*Carmiol* [6]), PANAMA, Bugaba [8], Santa Fé [7] (*Arcé*), line of railway (*Galbraith* [2], *M'Leannan* [3]).

In 1873 the Costa-Rica form of this *Basileuterus* was separated from *B. uropygialis* under the name of *B. leucopygius* [1], as it was then thought to be sufficiently different from the Panama bird to warrant the distinction. A reexamination of the types now convinces us that one of the chief differences relied upon, the pale colour of the rump, is due to the worn and faded state of the specimens; so that we are driven to the conclusion that the Costa-Rica and Panama birds belong to the same species. For this we retain the somewhat inappropriate name *Basileuterus leucopygius*, for the reasons stated below.

This bird was first known as an inhabitant of Central America from specimens obtained by M'Leannan and Galbraith [2]. These were called *B. semicervinus* of Sclater by Mr. Lawrence, an identification that was subsequently questioned, as the birds were supposed to agree better with *B. uropygialis* of the same author [3]. As some confusion exists relative to these two species, we propose briefly to examine them.

The description of *B. semicervinus* was based upon specimens obtained near Nanegal in Western Ecuador by Fraser *. We have since received examples from Santa Rita, on the same side of the Andes of Ecuador; and we have also others, of Salmon's collecting, from Remedios in the Cauca valley, Colombia, which are correctly referred to *B. semicervinus* †. It would thus appear that *B. semicervinus* is a bird of Western Ecuador, extending northwards, as is so frequently the case in birds of that district, into the Cauca valley.

Basileuterus uropygialis was described from a specimen with the vague locality "Brazil" attached to it ‡. This bird we now recognize in specimens from Sarayacu in Eastern Ecuador, Chyavetas in Peru §, and Bogotá, the latter probably obtained in the upper valley of the Meta. Thus it appears that each of these birds has a very distinct range, separated by the Andes. Their differences are described in, and both birds are figured on a plate accompanying, a synopsis of the species of *Basileuterus*, published by Mr. Sclater in 1865 ‖. It will there be seen that *B. semicervinus* has a darker back, and the underparts strongly tinged with fawn-colour, whereas *B. uropygialis* has an olive back, and usually pale underparts.

Now, on reconsidering the position of the Central-American bird, we are of opinion that it comes nearest to the bird of Western Ecuador, *B. semicervinus*, rather than that of the upper valleys of the basin of the Amazons, *B. uropygialis*.

But as the present bird has the feathers of the breast more or less edged with brown, and the sides of the neck and flanks not nearly so clear a fawn-colour as in *B. semicervinus*, but decidedly browner, we keep *B. leucopygius* under a distinct name. At the same time we admit that the relationship with *B. semicervinus* is very close, and recognize the justice of Mr. Lawrence's first application of this name to the Panama bird.

* Scl. P. Z. S. 1860, p. 84. † Scl. & Salv. P. Z. S. 1879, p. 494. ‡ Scl. P. Z. S. 1861, p. 128.
§ Scl. & Salv. P. Z. S. 1873, p. 257. ‖ P. Z. S. 1865, p. 282 *et seq.*, t. 10.

B. leucopygius does not appear to be a common bird, as but few specimens have reached us. It, like many of its congeners, probably lives in forests up to an elevation of about 3000 feet. M'Leannan always found it on the banks of a brook in very retired places in the forest [2]. Mr. E. Bartlett also says of *B. uropygialis* that it keeps close to brooks, uttering at intervals a shrill note.

c. *Pileus castaneus, genæ aut nigræ aut castaneæ.*

4. **Basileuterus melanogenys.** (Tab. X. fig. 3.)

Basileuterus melanogenys, Baird, Rev. Am. B. i. p. 248 [1]; Lawr. Ann. Lyc. N. Y. ix. p. 95 [2]; Salv. P. Z. S. 1870, p. 183 [3].

Supra obscure olivaceus, pileo castaneo utrinque nigro marginato, superciliis elongatis albis, loris et capitis lateribus nigris; subtus sordide albus, hypochondriis fusco-olivaceis; rostri maxilla corylina, mandibula sordide albida; pedibus corylinis. Long tota 5·0, alæ 2·4, caudæ 2·2, rostri a rictu 0·6, tarsi 0·95. (Descr. exempl. ex Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica, San Jose (*v. Frantzius* [1 2]), Volcan de Irazu (*Rogers*); Panama, Volcan de Chiriqui (*Arcé* [3]).

A very distinct species, without near allies, which is only known to us from specimens sent in collections formed in the highlands of Costa Rica and in the adjoining district of Chiriqui. Nothing is recorded of its habits.

5. **Basileuterus belli.**

Muscicapa belli, Giraud, Sixteen B. Texas, t. 4. f. 1 [1].

Basileuterus belli, Scl. P. Z. S. 1855, p. 65 [2]; 1859, p. 374 [3]; Cat. Am. B. p. 35 [4]; Scl. & Salv. Ibis, 1860, p. 31 [5]; Baird, Rev. Am. B. i. p. 250 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546 [7].

Basileuterus chrysophrys, Bp. Consp. i. p. 314 (ex Licht.) [8]; Scl. P. Z. S. 1857, p. 202 [9].

Supra olivaceus, pileo et genis læte castaneis, illo nigro utrinque marginato, superciliis elongatis et corpore subtus flavis, hypochondriis olivaceo indutis; rostro obscure corneo, pedibus pallide carneis. Long. tota 5·0, alæ 2·28, caudæ 2·2, rostri a rictu 0·55, tarsi 0·8. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)
♀ mari omnino similis.

Hab. Mexico, Real Ariba[8], Lagunas (*Deppe*), Jalapa (*Sallé*[9], *Höge*), Orizaba (*Botteri* [4]), temperate region of Vera Cruz (*Sumichrast* [7]), Llano Verde and Totontepec (*Boucard* [3]); Guatemala, Volcan de Fuego, Coban [5 6] (*O. S. & F. D. G.*).

This species, again, was described in 1840 by Giraud as from Texas, but has not since been found nearly so far north; so that this locality requires further confirmation. The first specimens ever obtained were doubtless those in the Berlin Museum, sent from Real Ariba and Lagunas by Deppe before the year 1830, to which Lichtenstein attached, unfortunately in manuscript only, the appropriate name of *Sylvia chrysophrys*. This name remained unpublished until Bonaparte used it in his 'Conspectus,' in 1850, too late for adoption, as Mr. Sclater long ago pointed out [2].

In Mexico as yet we only know *Basileuterus belli* as an inhabitant of the temperate highlands of the southern portion of the republic. Prof. Sumichrast records it from the temperate regions of Vera Cruz, beyond the limits of which it passes into both the alpine and hot regions; and he speaks of having met with it as high as about 6500 feet. Its usual resorts are thickets, ravines, and dark woods[7]. In Guatemala we found it common in the lower part of the belt of forest which surrounds the Volcan de Fuego between 7000 and 10,000 feet, and in the wooded ravines as low as 6000 feet. It here consorted with *Basileuterus culicivorus*, both species having very similar habits. Nothing is known of its nidification.

6. **Basileuterus rufifrons.**

Setophaga rufifrons, Sw. An. in Menag. p. 294[1].

Basileuterus rufifrons, Bp. Consp. i. p. 314[2]; Scl. P. Z. S. 1856, p. 291[3]; 1858, p. 299[4]; Baird, Rev. Am. B. i. p. 248[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 270[7]; Bull. U.S. Nat. Mus. no. 4, p. 16[8].

Sylvia aurigula, Licht. Mus. Ber.[9]; cf. Bp. Consp. i. p. 314[10].

Basileuterus delattrii, Scl. P. Z. S. 1860, p. 250[11] (nec Bp.).

Supra sordide olivaceus, capite summo et regione parotica castaneis, loris nigris, superciliis et stria infra oculos indisdincta albis, gula tota et pectore flavis, abdomine albido, hypochondriis fuscescentibus; rostro nigro, pedibus corylinis. Long. tota 4·7, alæ 2·1, caudæ 2·3, rostri a rictu 0·5, tarsi 0·8. (Descr. maris ex Cinco Señores, Mexico. Mus. nostr.)

Hab. Mexico[1 3], Sierra Madre (*Grayson*[5 7]), Apam (*le Strange*), Real Ariba (*Deppe*[9]), Jalapa (*de Oca*[5], *Höge*), Mirador (*Sartorius*[5]), Orizaba (*Sallé*[11]) ?, temperate region of Vera Cruz (*Sumichrast*[6]), La Parada (*Boucard*[4]), Cinco Señores (*Boucard*), Guichicovi (*Sumichrast*[8]).

This is another of the many discoveries of Herr Deppe in Mexico, whose specimens were allowed to remain buried in the Berlin Museum until after the species was described by Swainson in 1838. Reference was subsequently made to Deppe's specimens by Bonaparte in his 'Conspectus'[10].

B. rufifrons enjoys a wide range throughout the temperate regions of Southern Mexico, from the Sierra Madre, near Mazatlan, to the southern confine of the republic. Prof. Sumichrast tells us it frequents, with *B. culicivorus* and *B. belli*, thickets, ravines, and dark woods, and that, though chiefly found in the temperate region, it also extends its range to the hot region and into the more alpine districts as high as 6500 feet.

Some doubt seems to exist as to certain specimens, both from Mexico and Guatemala, whether they belong to *B. rufifrons* or to *B. delattrii*. Adult fresh-plumaged birds of these two species are easily distinguishable; but younger birds of the two are not so readily recognized, as in *B. rufifrons* a yellow tinge pervades the white of the under-surface, and in *B. delattrii* the yellow of this part is of not nearly so decided a tint as in old birds. It is probably birds of this stage of plumage that have been misnamed. On

reexamining the question, we believe that *B. rufifrons* is strictly confined in its range to Mexico, and *B. delattrii* to Guatemala, *B. mesochrysus* appearing again in the more southern parts of Central America.

7. Basileuterus delattrii.

Basileuterus delattrii, Bp. Compt. Rend. xxxviii. p. 383, et Notes Orn. p. 63[1]; Scl. & Salv. Ibis, 1860, p. 274[2]; Baird, Rev. Am. B. i. p. 249[3].

Basileuterus rufifrons, Salv. Ibis, 1866, p. 192[4].

B. rufifronti valde similis, sed abdomine toto flavo distinguendus. (Descr. maris ex Volcan de Agua, Guatemala. Mus. nostr.)

Hab. GUATEMALA, Dueñas[2 4], Volcan de Fuego, Volcan de Agua, Coban[3], Lanquin, Cahabon (*O. S. & F. D. G.*); NICARAGUA (*Delattre*[1])?.

It is very doubtful if this species is found beyond the limits of Guatemala and, perhaps, Nicaragua; and we believe that all Mexican specimens attributed to *B. delattrii* will prove to be somewhat immature examples of *B. rufifrons*, just as Guatemalan birds called by the latter name are almost certainly of the present species. What we take to be immature birds of both these species have the belly a yellowish white, which in *B. rufifrons* becomes greyish white in the adult and in *B. delattrii* yellow, like the throat. Regarding the occurrence of this species in Nicaragua some doubt must be entertained, as it is very probable that Delattre's specimens described by Bonaparte as from that country were really obtained in Guatemala. In Costa Rica the place of *B. delattrii* is taken by the more southern form *B. mesochrysus.*

In Guatemala we found this species in the forests of both volcanos, at elevations ranging between 2500 and 5000 or 6000 feet, and in Vera Paz at several places in the valley of the Cahabon river, between Coban and Cahabon. Its habits are similar to those of *B. belli* add *B. culicivorus.* Of its nidification nothing has yet been recorded.

8. Basileuterus mesochrysus.

Basileuterus mesochrysus, Scl. P. Z. S. 1860, p. 251[1]; Baird, Rev. Am. B. i. p. 250[2]; Salv. P. Z. S. 1867, p. 136[3]; 1870, p. 183[4]; Lawr. Ann. Lyc. N. Y. ix. p. 95[5]; v. Frantzius, J. f. Orn. 1869, p. 294[6]; Salv. & Godm. Ibis, 1879, p. 117[7].

Basileuterus delattrii, Cab. J. f. Orn. 1860, p. 325[8]; Lawr. Ann. Lyc. N. Y. vii. p. 322[9] (nec Bonaparte).

Basileuterus brunneiceps, Bp. Consp. i. p. 314[10] (nec d'Orbigny et Lafresnaye).

B. delattrii valde affinis, sed nucha cinerea, stria rictali alba magis extensa forsan distinguendus. (Descr. exempl. ex Paraiso, Panama. Mus. nostr.

Hab. COSTA RICA, San José (*v. Frantzius*[6]), Guaitil and Grecia (*Carmiol*[5]), Irazu (*Rogers*); PANAMA, Volcan de Chiriqui, Chitra[4], Calobre[4] and Santa Fé[3] (*Arcé*), line of railway (*M'Leannan*[9]), Paraiso station (*Hughes*).—COLOMBIA, Sierra Nevada de Santa Marta[7], Bogota[1 10].

In separating this bird from *B. delattrii*, Mr. Sclater speaks of the greater length of its wings[1]; and this feature is also referred to by Prof. Baird[2] and by Salvin[3]; but, with a larger series of specimens now before us, we find that the length of the wing varies from 2·04 to 2·4, specimens of *B. delattrii* and *B. rufifrons* having wings measuring between these extremes. The length of the wing, therefore, of *B. mesochrysus* is not a diagnostic character. The same may be said of the colour of the underparts when full-plumaged adult birds are compared. The most trustworthy point of difference is the presence in *B. mesochrysus* of a grey nape, that part of *B. delattrii* being olive like the back.

B. mesochrysus was first described by Mr. Sclater, in 1860[1], from "Bogota" specimens, where the bird would appear to be not uncommon, judging from its frequent occurrence in trade collections from Colombia. Bonaparte, too, seems to have seen it from the same place, though he wrongly identified it with *Setophaga brunneiceps*[10], so Dr. Cabanis tells us[8]. We also know of its presence elsewhere in Colombia, as Mr. Wyatt found it in the Magdalena valley, near Herradura, and Mr. Simons in the Sierra Nevada of Santa Marta, as high as 4000 feet above the sea.

In Central America it occurs at all elevations, from the low-lying land of the Panama railway up to 4000 feet in the neighbourhood of San José de Costa Rica.

It is, like its allies, an inhabitant of the forests.

SETOPHAGA.

Setophaga, Swainson, Zool. Journ. iii. p. 360 (1827). (Type *Muscicapa ruticilla*, Linn.)
Euthlypis, Cabanis, Mus. Hein. i. p. 18. (Type *E. lacrymosa*.)

In this genus the rictal bristles are more fully developed than in any other member of the Mniotiltidæ, it being in this respect quite as well provided with bristles as the majority of the Old-World Muscicapidæ. The presence of a nine- instead of a ten-primaried wing, however, at once shows the true position of *Setophaga*. *Basileuterus* is its nearest ally, from which *Setophaga* differs in having a bill rather wider in proportion to its length, in the greater development of the rictal bristles, and in the style of coloration of the tail-feathers. In a recent synopsis of the genus* Salvin recognized fifteen species as belonging to *Setophaga*, which are mainly distributed over Mexico, Central America, and the Andes of South America, as far as Bolivia. Besides these, one migratory species ranges over most of Eastern North America and the Antilles, one species is found in Venezuela, and another in Guiana. But *Setophaga* is unrepresented in the valley of the Amazons, South-eastern Brazil, and in all the low-lying forest-country of South America.

Returning to our region, we find *Setophaga ruticilla*, the single migratory species of the genus, very abundant in the winter season from the sea-level to a height of 7000 or

* Ibis, 1878, p. 302 *et seq.*

8000 feet. *S. picta* just enters the United States, but is common in the highlands of Mexico and Guatemala, countries which also have *S. miniata* in common, as well as *S. lacrymosa*. Costa Rica and the State of Panama possess in common *S. aurantiaca* and *S. torquata*—the former a local representative of the widely ranging *S. verticalis* of South America, the latter a peculiar form without near allies.

In these six species all three of the groups into which the genus has been divided are represented. These may be seen under their respective headings.

A. *Sexus dissimiles, alæ longiores, rectricum lateralium apices nigræ; speculum alare rubescens; venter albicans.*

1. Setophaga ruticilla.

Muscicapa ruticilla, Linn. Syst. Nat. i. p. 326 [1].

Setophaga ruticilla, Sw. Phil. Mag. new ser. i. p. 368 [2]; Gosse, B. Jam. p. 164 [3]; Cab. in Schomb. Guiana, iii. p. 667 [4]; Bp. P. Z. S. 1837, p. 118 [5]; Scl. P. Z. S. 1854, p. 111 [6]; 1855, p. 144 [7]; 1856, p. 292 [8]; 1859, p. 374 [9]; 1864, p. 172 [10]; Sallé, P. Z. S. 1857, p. 231 [11]; Scl. & Salv. Ibis, 1859, p. 12 [12]; P. Z. S. 1864, p. 347 [13]; 1879, p. 494 [14]; A. & E. Newton, Ibis, 1859, p. 144 [15]; Bryant, Pr. Bost. Soc. N. H. vii. p. 111 [16]; x. p. 251 [17]; Lawr. Ann. Lyc. N. Y. vii. p. 322 [18]; viii. p. 175 [19]; ix. p. 96 [20]; Bull. U.S. Nat. Mus. no. 4, p. 16 [21]; Cab. J. f. Orn. 1860, p. 325 [22]; Baird, Rev. Am. B. i. p. 256 [23]; Dresser, Ibis, 1865, p. 479 [24]; Salv. P. Z. S. 1867, p. 136 [25]; 1870, p. 183 [26]; 1878, p. 305 [27]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [28]; Frantz. J. f. Orn. 1869, p. 294 [29]; Wyatt, Ibis, 1871, p. 323 [30]; Baird, Brew. & Ridgw. i. p. 322 [31]; Coues, B. Col. Vall. i. p. 337 [32]; Gundl. Orn. Cub. p. 70 [33].

Motacilla tricolora, Müll. Naturs. Suppl. p. 175 [34] (ex D'Aub. Pl. Enl. 391. f. 2).

Motacilla multicolor, Gm. Syst. Nat. i. p. 972 [35] (ex D'Aub.).

Motacilla flavicauda, Gm. Syst. Nat. i. p. 997 [36].

Nitenti-purpurascenti nigra; corporis lateribus, subalaribus, speculo alari et caudæ rectricibus quatuor externis utrinque ad basin rufo-aurantiacis, ventre et crisso albis, hoc medialiter nigro; rostro corneo, pedibus fuscis. Long. tota 4·5, alæ 2·5, caudæ 2·4, tarsi 0·7. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ supra olivascenti-grisea, subtus albida; subalaribus, speculo alari et caudæ basi (nisi in quatuor rectricibus mediis) flavido-aurantiacis. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America, Eastern and Middle Provinces [31 32], Texas [24].—Mexico (*Sallé* [8]), maritime parts (*Bullock* [2]), hot region of Vera Cruz (*Sumichrast* [28]), valley of Mexico (*White* [10]), Playa Vicente (*Boucard* [9]), Santa Efigenia (*Sumichrast* [21]); British Honduras, Belize (*O. S.* [12]); Guatemala [5], Retalhuleu, Totonicapam, Dueñas, San Gerónimo, Coban, Choctum (*O. S. & F. D. G.*); Salvador, Acajutla (*O. S.*); Costa Rica, highlands (*Hoffmann* [22]), Barranca (*v. Frantzius* [29]), Turrialba, Angostura (*Carmiol* [20]); Panama, Volcan de Chiriqui (*Hicks* [19], *Arcé*), Calovevora [26], Chitra [26], and Santa Fé [25] (*Arcé*), Lion-Hill station (*M'Leannan* [13 18]).—Colombia [7 14 30]; Ecuador [6]; Guiana [4 34 35]; Antilles, Cuba [33], Jamaica [3], Haiti [11], Puerto Rico [17], Bahamas [16], St. Croix [15], &c.

This well-known species, the only migratory member of the genus, has a very wide range in the winter months throughout Eastern Mexico and the whole of Central America; and beyond these limits it extends its travels as far south as about the line of the equator, being found at this season throughout the northern portion of the South-American continent, and probably in all of the West-Indian Islands. Its limits in Mexico seem confined to the eastern portion of the republic, as we have no tidings of it from Western Mexico; but as we approach the southern frontier it crosses to the Pacific, and has been recorded from Tehuantepec by Professor Sumichrast [21]. In Guatemala it spreads from one ocean to the other, and in altitude to about 8000 feet. We find it, however, at the sea-level near Belize and elsewhere; and it is more common in the hot than in the colder country. In other parts of Central America it is equally abundant; and hardly a collection of birds made during the winter months in that country fails to contain specimens.

Its habits have been very fully described by North-American writers, amongst whom Dr. Coues may be specially mentioned [32]. In Guatemala its chief resort is second-growth woods and the edges of the older forests, where its search for insects is carried on with incessant perseverance.

In the north it only resides during the summer, when the business of reproduction is carried out. It there spreads over temperate North America, especially the Eastern Province, its northern limit reaching Fort Simpson, and its western Utah [32].

Its nest is described as placed in a fork of a tree about five feet from the ground, and as composed of varied materials, such as vegetable fibres, grass, strips of bark, &c.; these are loosely woven and lined with fine grasses, pine-leaves, and horsehair. The eggs, five in number, are white, blotched and dotted with purple, lilac, and brown [31].

B. *Sexus similes; alæ breviores, magis rotundatæ; rectrices laterales fere totæ aut in parte terminali late albæ.*

a. *Supra nitenti-nigra; speculum alare late album; abdomen coccineum.*

2. **Setophaga picta.**

Setophaga picta, Sw. Zool. Ill. ser. 2, i. t. 3 [1]; Bp. Consp. i. p. 312 [2]; Scl. P. Z. S. 1855, p. 66 [3]; 1856, p. 292 [4]; 1858, p. 299 [5]; 1859, p. 374 [6], Scl. & Salv. Ibis, 1859, p. 12 [7]; Baird, U.S. Bound. Surv. ii. Birds, p. 11 [8]; Rev. Am. B. i. p. 256 [9]; Taylor, Ibis, 1860, p. 110 [10]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546 [11]; Lawr. Mem. Bost. Soc. N. H. ii. p. 270 [12]; Bull. U.S. Nat. Mus. no. 4, p. 16 [13]; Coues, B. Col. Vall. i. p. 335 [14]; Salv. Ibis, 1878, p. 306 [15].

Muscicapa leucomus, Giraud, Sixteen B. Tex. t. 6. f. 1 [16].

Muscicapa tricolor, Licht. Mus. Berol.[17] (fide Bp. Consp. i. p. 312).

Nitenti-nigra; macula supra et infra oculos, tectricibus alarum mediis et majoribus, secundariorum marginibus, subalaribus et ventre imo albis, crisso albo ad basin nigro; abdomine medio coccineo; rectrice extima

utrinque fere omnino alba proximæ parte basali nigra, tertia albo terminata, reliquis omnino nigris ; rostro et pedibus nigris. Long. tota 5·0, alæ 2·6, caudæ 2·5, rostri a rictu 0·55, tarsi 0·7. (Descr. maris ex Santa Barbara, Guatemala. Mus. nostr.)

♀ mari similis, sed coloribus paulo obscurioribus.

Av. horn. sordide niger ; abdomine albido sordide brunneo maculato.

Hab. North America, Arizona [14].—Mexico, Boquillo (*Couch* [8]), Real del Monte (*Taylor* [1]), Zacatecas [2], Sierra Madre (*Grayson* [12]), alpine region of Vera Cruz (*Sumichrast* [11]), near city of Mexico (*Sallé* [4], *le Strange*), La Parada [5] and Cinco Señores [6] (*Boucard*), Gineta Mountains (*Sumichrast* [13]); Guatemala [7], Volcan de Fuego [9], ridge near Chol, San Gerónimo, Santa Barbara, Chilasco, and Tactic (*O. S. & F. D. G.*); Honduras, Comayagua (*Edwards* [10]).

This pretty *Setophaga* was first made known to science by Swainson, who described and figured a bird sent to Mr. John Taylor from Real del Monte in Mexico [1]; and for the past five-and-twenty years it has become familiar to us from the number of specimens sent from various parts of the Mexican highlands, where it enjoys a wide range, being known from Arizona [14] and Nuevo Leon [8] in the north to the Gineta Mountains in the State of Chiapas [13]. Grayson, who observed it in Sierra Madre, near Mazatlan, speaks of it as having all the habits of the Warblers, being always very busy, actively hopping amongst the branches in search of insects, uttering at the same time a chirping note. The tail is often spread just enough to show distinctly the broad white tips of the outer feathers [12]. Prof. Sumichrast places it amongst the birds of the alpine region of Vera Cruz, being found at elevations ranging between 4600 and 8200 feet; and most of the other Mexican localities given above lie at a considerable elevation. In Guatemala, too, it is a bird characteristic of the upland oak-forests, and we found it at various places between 8000 or 9000 feet in the Volcan de Fuego, and 3000 feet near San Gerónimo. As in Mexico it is a conspicuous species, soon attracting attention by its restless movements, and its habit of opening its tail and showing the white tips to the outer rectrices. Beyond Guatemala we know nothing of it, except the note of Mr. Taylor that Mr. Edwards obtained a specimen near Comayagua in Honduras, indicating that it probably occurs in the higher forest-clad mountains which lie between that State and Guatemala.

Setophaga picta having been included in Giraud's 'Sixteen Birds of Texas' under the name of *Muscicapa leucomus* [3] [16], has long had a quasi footing as a member of the United-States fauna. Owing to its recent discovery in Southern Arizona, its status is now established. Capt. Bendire met with it near Tucson in 1872, and Mr. W. H. Henshaw in the two following years in different parts of Southern Arizona, where it was breeding [14]. According to the observations of the latter naturalist, *S. picta* leaves Arizona in the winter months. We have no evidence of any migratory movement of the species in Guatemala, where we believe it is found throughout the year, and where it certainly breeds, as we have a specimen in first plumage from that country. This being the case, it would

appear that during the winter a contraction of the area inhabited by the species takes place along its northern border, rather than a shifting of ground by the whole of the individuals.

Of the nest and eggs of this species nothing is yet known.

b. *Supra schistaceæ, aliquando olivaceo tinctæ; speculum alare nullum.*

a'. *Mentum et gula nigricantia.*

3. Setophaga miniata.

Setophaga miniata, Sw. Phil. Mag. new ser. i. p. 368[1]; Scl. P. Z. S. 1856, p. 292[2]; 1858, p. 299[3]; 1859, pp. 363[4], 374[5]; 1864, p. 173[6]; Baird, B. N. Am. p. 249, t. 58. f. 1[7]; Rev. Am. B. i. p. 259[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[9]; Lawr. Mem. Bost. Soc. N. H. ii. p. 270[10]; Bull. U.S. Nat. Mus. no. 4, p. 16[11]; Salv. Ibis, 1878, p. 308[12].

Muscicapa larvata, Licht. Preis-Verz. mex. Vög. p. 2[13] (cf. J. f. Orn. 1863, p. 58).

Muscicapa vulnerata, Wagl. Isis, 1831, p. 529[14].

Setophaga vulnerata, Bp. Consp. i. p. 313[15]; Scl. P. Z. S. 1855, p. 65[16].

Muscicapa derhami, Giraud, Sixteen B. Tex. t. 3. f. 2[17].

Setophaga castanea, Less. Rev. Zool. 1839, p. 42[18].

Setophaga flammea, Kaup, P. Z. S. 1851, p. 50[19]; Scl. & Salv. Ibis, 1859, p. 12[20]; Baird, Rev. Am. B. i. p. 259[21].

Setophaga intermedia, Hartl. Rev. Zool. 1852, p. 5[22].

Supra ardesiaca; alis, uropygio et cauda nigricantibus; fronte, loris, verticis lateribus et gula tota nigris, vertice ipso læte castaneo; subtus abdomine toto coccineo, subalaribus et crisso extus albis; caudæ rectricibus tribus externis gradatim albo terminatis, rostro et pedibus nigris. Long. tota 5·4, caudæ 2·6, rostri a rictu 0·5, tarsi 0·73. (Descr. maris ex Parada, Mexico. Mus. nostr.)

Hab. Mexico[2 13 17], Sierra Madre (*Grayson*[19]), Valladolid (*Bullock*[1]), Zacatecas[15], valley of Mexico (*White*[6], *le Strange*), Jalapa[8] (*de Oca*[4]), temperate and alpine regions of Vera Cruz (*Sumichrast*[9]), Temascaltepec and Real Ariba (*Deppe*), Cinco Señores[5], Totontepec[5], and La Parada[3] (*Boucard*), Sierra Madre near Zapotitlan (*Sumichrast*[10]); Guatemala[19 20], Quezaltenango, Volcan de Fuego, Dueñas, Carrizal, Chilasco, and Coban (*O. S. & F. D. G.*).

The Guatemalan and Mexican representatives of this bird were long considered to belong to distinct species, the latter bearing Swainson's name *S. miniata*, the former one proposed by Kaup, *S. flammea*[19]. Having recently carefully examined this subject[12], we came to the conclusion that the differences were too slight to justify the birds being kept separate; so we united them under the name *S. miniata*, proposed by Swainson for the Mexican bird in 1827, the description being taken from a specimen obtained by Bullock at Valladolid in the Mexican highlands[1]. The Guatemalan *S. flammea*[19] was formerly said to differ in having the breast rather more orange-red and the tail somewhat shorter and with less white on the outer feathers; but comparing specimens killed at

the same time of year, the difference of the colour of the breast is not perceptible, and the examination of a series of specimens shows some variability in the extent of the white of the tail-feathers. So no really tangible difference remains by which to distinguish the two birds. Regarding the other synonyms given to this bird, Wagler's name *S. vulnerata*[14], no doubt, applies to it; for though Wagler says his is very near Swainson's species, he does not say how they differ. *Muscicapa larvata* of Lichtenstein[13], *Setophaga castanea* of Lesson[18], and *Muscicapa derhami* of Giraud[17] also apply, without doubt, to *Setophaga miniata*; but they all seem to have been proposed by their authors without any reference to the work of their predecessors, and doubtless in ignorance of their labours. Of *S. flammea* we have already spoken; and, lastly, *S. intermedia* of Hartlaub was proposed for the Guatemalan bird, and, with *S. flammea*, must be placed as a synonym of *S. miniata*.

Though stated by Giraud to occur within the United-States border, *S. miniata* has not since been found north of Mexican territory, though, like *S. picta*, it may still be discovered in Southern Arizona. Its most northern limit in Mexico is the Sierra Madre, near Mazatlan, where Grayson met with it, but where he says it is rare, only two or three individuals having come under his notice high up in the mountains. He describes its habits as resembling those of the Flycatchers, waiting quietly on its perch for passing insects. Prof. Sumichrast speaks of it as inhabiting the alpine and temperate regions of Vera Cruz, at altitudes ranging between 1600 and 8200 feet. In Guatemala we never met with it so low down, the neighbourhood of Coban, 4300 feet, being the lowest point where it occurs in abundance; but here it is a well-known bird. Above this, in all suitable woods, it is common up to 8000 feet in the vicinity of Quezaltenango in the Altos of Guatemala.

Like *S. picta* it is a restless species, constantly searching for its food amongst the leaves and branches of the oak trees it frequents. In Guatemala it is probably a resident species, as we observed it at nearly every season of the year.

Of its nest and eggs nothing is yet known.

4. Setophaga aurantiaca.

Setophaga aurantiaca, Baird, Rev. Am. B. i. p. 261[1]; Lawr. Ann. Lyc. N. Y. ix. p. 96[2]; v. Frantzius, J. f. Orn. 1869, p. 294[3]; Salv. Ibis, 1869, p. 313[4]; 1878, p. 310[5]; P. Z. S. 1870, p. 183[6].

Setophaga flammea, Cab. J. f. Orn. 1861, p. 85[7] (nec Kaup).

Supra schistacea; fronte, capitis lateribus, gula tota et cauda nigricantibus; plaga verticali castanea; abdomine toto aurantiaco-flavo, crisso albo; rectricis utrinque extimæ dimidio apicali albo, duabus quoque utrinque proximis albo terminatis; rostro et pedibus nigris. Long. tota 5·3, alæ 2·6, caudæ 2·5, rostri a rictu 0·6, tarsi 0·7. (Descr. maris ex San José, Costa Rica. Mus. nostr.)

Av. horn. fusco-niger; abdomine medio fulvescente.

Hab. Costa Rica[7], San José[1], Barranca[1], Grecia[2], and Dota Mountains[1 2] (*Carmiol*), Candelaria Mountains (*v. Frantzius*[3]), Turrialba and Tucurriqui (*Arcé*); Panama, Volcan de Chiriqui, Calovevora (*Arcé*[6]).

Of the same style of coloration as *S. miniata*, from which it differs in having a yellow instead of a red abdomen, *S. aurantiaca* has its nearest ally in *S. verticalis*, a species of wide range in the Andes from Colombia and Venezuela to Bolivia. From this it chiefly differs in having the abdomen orange rather than lemon-yellow; and the outer rectrices of *S. verticalis* have the white of greater extent than in the more northern bird, which also has the dark markings of the head of a blacker hue. At one time we doubted there being two recognizable forms[4]; but having had a larger series for examination, we are now of opinion that the differences are constant, rendering the separation of the two justifiable.

S. aurantiaca was described from specimens from Costa Rica [1], where it is a common bird in the highlands, extending its range as low as 3000 feet. It is also abundant in the higher mountains of the State of Panama, but is altogether absent from the low-lying lands crossed by the line of railway. Its range, therefore, is not conterminous with that of *S. verticalis* of South America, which, from all we hear of it, is also a bird of the higher mountain-ranges.

S. aurantiaca is doubtless a sedentary species. It certainly breeds in the Volcano of Chiriqui, whence we have a young specimen in first plumage which could only have been barely able to fly when it was shot.

b′. *Corpus subtus omnino aureo-flavum.*

5. **Setophaga torquata.** (Tab. X. fig. 2.)

Setophaga torquata, Baird, Rev. Am. B. i. p. 261[1]; Lawr. Ann. Lyc. N. Y. ix. p. 96[2]; Salv. P. Z. S. 1867, p. 136[3]; Ibis, 1878, p. 319[4]; v. Frantzius, J. f. Orn. 1869, p. 294[5].

Supra schistacea; pileo undique, alis et cauda nigricantibus; crista verticali castanea; fronte, capitis lateribus et corpore subtus flavis, torque pectorali dorso concolori; rectrice utrinque externa pro majore parte alba, proxima dimidio apicali albo, tertia albo terminata; rostro et pedibus nigris. Long. tota 5·4, alæ 2·6, caudæ 2·5, rostri a rictu 0·6, tarsi 0·8. (Descr. exempl. ex Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica, San José[1 2], La Palma[2 5] (*v. Frantzius*); Panama, Volcan de Chiriqui[4], Cordillera de Tolé[3 4], Calovevora[3] (*Arcé*).

This well-marked species is confined in its range to the mountain-districts of Costa Rica and the adjoining State of Panama. In the former country it appears to be not uncommon; for though it did not fall to the lot of Dr. Hoffmann and his fellow-labourers to discover the species, it has since been found by nearly every collector who has worked in the country. It is probably equally abundant in the forests of the higher parts of Panama, whence we have received a fair supply of specimens.

In the distribution of the colours of the head *S. torquata* differs from all its congeners; but the most striking distinction is the dark pectoral band from which it takes its name; this is not present in any other member of the genus.

Our figure is taken from a Costa-Rican specimen shot near La Palma by Dr. von Frantzius.

C. *Sexus similes; statura major; alæ rotundatæ; rostrum magis elongatum, robustius cauda nigricans, rectricibus omnibus plus minusve albo terminatis.*

6. **Setophaga lacrymosa.** (Tab. XI. fig. 2.)

Euthlypis lacrymosa, Cab. Mus. Hein. i. p. 19[1]; Scl. P. Z. S. 1856, p. 291[2]; 1859, p. 363[3]; Scl. & Salv. Ibis, 1860, p. 274[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 546[5]; Lawr. Mem. Bost. Soc. N. H. i. p. 270[6].

Basileuterus lacrymosus, Bp. Consp. i. p. 314[7].

Setophaga lacrymosa, Baird, Rev. Am. B. i. p. 263[8]; Salv. Ibis, 1878, p. 320[9].

Supra schistacea vix olivaceo tincta; fronte et superciliis, loris et regione suboculari nigris, macula lorali et ciliis albis; pileo medio sulphureo; subtus ochraceo-flava, gula et abdomine medio flavescentioribus; hypochondriis olivaceis; crisso flavescenti-albo; rectricibus omnibus albo terminatis; rostro nigro, pedibus corylinis. Long. tota 6·0, alæ 3·0, caudæ 2·8, tarsi 0·95, rostri a rictu 0·7. (Descr. maris ex Alotenango, Guatemala. Mus. nostr.)

Hab. Mexico[7], Mazatlan (*Grayson*[6]), Lagunas (*Mus. Berol.*[1]), temperate region of Vera Cruz (*Sumichrast*[5]), Cordova (*Sallé*[2]), Jalapa (*de Oca*[3]), Santa Efigenia, Tehuantepec (*Sumichrast*); Guatemala, Alotenango[4] and Savana Grande[8] (*O. S. & F. D. G.*).

This peculiar and well-marked species, when first described by Dr. Cabanis[1], was made the type of a new genus, *Euthlypis*, a position Bonaparte held that it ought perhaps to occupy[7]. Prof. Baird, who paid considerable attention to the question when compiling his 'Review of American Birds,' however, only granted *Euthlypis* subgeneric rank, calling the present bird *Setophaga lacrymosa*. This seems to be its proper place[9]. The bird is larger than any other species of *Setophaga*, and has a longer, somewhat stronger, bill, in which respect it approaches *Basileuterus*. In having white tips to the tail-feathers, which it displays in true Setophagian fashion, it seems rightly placed in *Setophaga*.

S. lacrymosa was first described from a specimen in the Berlin Museum, obtained most probably by Deppe at Lagunas in Mexico, in which country it has since been obtained by several collectors. Grayson, who found it at Mazatlan[6], describes it as unlike the Flycatchers in its habits, never remaining quiet a moment, but constantly hopping about over old logs, on the ground, in the brush and low branches of trees, with its tail spread, its actions in this respect being not unlike those of *Granatellus*. He speaks of it as a common species near Mazatlan, where he only met with it in the dark woods near the river. All his specimens were procured in the winter months. Prof. Sumichrast[5] includes it amongst the inhabitants of the temperate region of Vera Cruz, at elevations lying between 1600 and 3300 feet. He says it is a rare bird, but that he obtained several specimens in the woods covering the calcareous rocks of Penuela, near Cordova, at an elevation of about 2300 feet above the sea. He describes its habits as different from those of *Setophaga*, walking rather than hopping, and when on the ground to be

mistaken for one of the Formicariidæ. One specimen he killed was in the midst of an innumerable column of Tepegua ants (*Eciton mexicanum*), upon which he says it was doubtless feeding.

In Guatemala its range is very restricted; and we are not aware that it occurs anywhere except in the forests which lie at an elevation of from 3000 to 4500 feet, between the Volcanos of Agua and Fuego. In September 1859 a pair were watched for some time, and afterwards secured, below the village of Alotenango in this district [4]. Their restless motions recalled those of *Setophaga*; and they had the curious habit of expanding their tails and swaying them to and fro. Subsequently our Indian hunters used not unfrequently to bring us specimens from the same district; but we are not aware that the bird ever occurs to the bird-collectors of Vera Paz.

Southwards of Guatemala we have no record of its existence.

[Note.—*Setophaga multicolor*, briefly described by Bonaparte (Consp. Av. i. p. 312) from a specimen in the Senckenberg Museum said to be from Mexico, has not since been recognized as a Mexican bird. The adoption by Bonaparte of Gmelin's name of *Muscicapa multicolor* seems to indicate that the bird he described was a specimen of the well-known Australian bird, the Red-bellied Flycatcher of Latham, which now stands as *Petrœca multicolor* (Gm.), to which a wrong locality had been attached. Anyhow we must exclude *Setophaga multicolor* from the Mexican fauna until further evidence of its existence in that country is forthcoming. (*Cf.* Salvin, Ibis, 1878, p. 321.)]

Fam. VIREONIDÆ*.

VIREO.

Vireo, Vieillot, Ois. Am. Sept. i. p. 83 (1807) (Type *Muscicapa noveboracensis*, Gm.); Baird, Brew. & Ridgw. N.-Am. B. i. p. 357; Coues, B. Col. Vall. i. p. 484.
Vireosylvia, Bonaparte, Comp. List, p. 26 (1838). (Type *Muscicapa olivacea*, Linn.)
Phyllomanes, Cabanis, Arch. f. Nat. 1847, i. p. 321.
Lanivireo, Baird, Rev. Am. B. i. p. 345 (1866). (Type *Vireo flavifrons*, Vieill.) A subgenus.
Vireonella, Baird, Rev. Am. B. i. p. 369 (1866). (Type *Vireo gundlachi*, Lemb.) A subgenus.

Opinions have differed as to whether this genus should be used in a wide sense so as to include *Vireosylvia*, or whether it should be so restricted as to leave that genus to stand by itself. Prof. Baird, who closely studied these birds when compiling his 'Review of American Birds,' admitted seven genera of Vireonidæ, keeping *Vireosylvia* and *Vireo* distinct. The former he divided into two subgenera (*Vireosylvia* and

* We follow Prof. Baird (Rev. Am. B. i. p. 322) in the arrangement of this family, the members of which are to be distinguished from the Mniotiltidæ either by the hooked bill or by the presence of a first spurious primary, and by the basal phalanx of the toes being more united. Prof. Baird groups the Vireonidæ with the Ampelidæ and Laniidæ, which seems to be their best location. So far as we know at present, the family has no near allies in the Old World, its members being restricted to the two continents of America.

Lanivireo), and the latter also into two (*Vireo* and *Vireonella*). The differences by which these sections are distinguished are given below in the headings to each group of species. The system here elaborated was, with slight modification, adopted in the 'History of North-American Birds;' but there, though the names *Vireosylvia*, *Lanivireo*, and *Vireo* are called subgeneric titles of *Vireo*, they stand at the head of each species with full generic rank. Dr. Coues, in his various writings, and in his most recent one the 'Birds of the Colorado Valley,' advocates the use of *Vireo* in its widest sense; and the arguments put forward in favour of this view seem to us to be most worthy of consideration. One of the chief, if not the only point of distinction between *Vireo* and *Vireosylvia* (the presence or apparent absence of a spurious first primary) breaks down on close examination; for this feather proves to be always present, though sometimes in a very reduced form. Moreover, in the case of *V. flavifrons* and *V. solitarius* (birds whose general appearance is so much alike that they have almost always been placed under the same generic head), the different state of development of the first primary in each points to their separation.

In *Vireo* the legs are slender, the claws weak, and the lateral toes unequal. The shape of the wings varies; in some of the more migratory species they are pointed, in others more rounded. The bill is slender compared with such genera as *Vireolanius* and *Cyclorhis*, and abruptly decurved at the end as compared with *Hylophilus*. The first plumage of the young resembles that of the adult, and is destitute of spots either above or below. This character applies to the whole family. Twenty species are now known to occur within the limits of Mexico and Central America, of which nine are immigrants from the north during the winter season, coming in autumn and leaving again in spring. Of these, only two pass beyond our limits into the northern parts of South America. Besides these migratory birds, there are eleven more or less sedentary species, whereof one (*V. hypochryseus*) is peculiar to Western Mexico and the Tres Marias Islands, one (*V. ochraceus*) is shared by Mexico and Guatemala, one (*V. pallens*) by Nicaragua and Costa Rica, and another (*V. carmioli*) by Costa Rica and Panama. *V. huttoni*, a northern species, is said to be resident in Mexico; and *V. amauronotus* is also probably resident there.

In their summer quarters the members of this genus are during the breeding-season cheerful songsters; but in the winter they only utter call-notes.

A. *Alæ productæ, acutæ, cauda longiores; remex primus minutus, aliquando obsoletus.* (Vireosylvia.)

a. *Corpus attenuatum et elongatum; rostrum debile, angustum, rectum; pedes debiles.*

a′. *Remex spurius obsoletus.*

a″. *Pileus cinereus utrinque fusco marginatus.*

1. Vireo calidris.

Motacilla calidris, Linn. Syst. Nat. i. p. 329[1].

Vireosylvia calidris, Baird, Rev. Am. B. i. p. 329[2]; Scl. & Salv. P. Z. S. 1875, p. 234[3]; Lawr. Pr. U.S. Nat. Mus. i. p. 486[4].

Vireo calidris, Baird, Brew. & Ridgw. N.-Am. B. i. p. 359[5].

Vireosylvia calidris, var. *dominicana*, Lawr. Pr. U.S. Nat. Mus. i. pp. 55, 486[6].

Muscicapa altiloqua, Vieill. Ois. Am. Sept. i. p. 67, t. 38[7].

Vireosylvia altiloqua, A. & E. Newton, Ibis, 1859, p. 145[8]; Scl. & Salv. P. Z. S. 1864, p. 348[9].

Supra olivaceus, pileo cinerascente utrinque fusco marginato, superciliis sordide albis, loris et stria utrinque rictali fuscis; subtus albidus, hypochondriis et crisso vix olivaceo tinctis; rostro et pedibus corneis. Long. tota 6·0, alæ 3·2, caudæ 2·35, rostri a rictu 0·85, tarsi 0·75. (Descr. maris ex Panama. Mus. nostr.)

Hab. North America, Florida[5].—Panama, Lion-Hill Station (*M'Leannan*).—Venezuela[3]; Guiana; Antilles, Cuba, Jamaica[2], San Domingo[7], Windward Islands generally[2 4 6].

This species is a well-known inhabitant of most of the West-Indian Islands, having been figured as long ago as 1751 by Edwards* from specimens obtained in the island of Jamaica. Upon this figure Linnæus founded his description[1]. Vieillot also described it from San-Domingo specimens, giving it the name of *altiloqua*[7]. The Cuban representative of this form has sometimes been admitted to specific rank under the name of *V. barbatula*; so also have those of the Lesser Antilles in several instances been provided with names[6]; but, after examining a considerable series, it seems to us that the points of difference are too slight and unstable to admit of any separation being satisfactorily made.

The presence of this *Vireo* in Continental America has only recently been ascertained. M'Leannan in 1864 sent us a single specimen from Panama which we referred to this species[8]. This is the only one we have seen from Central America; and the correctness of its determination was questioned by Prof. Baird[2]. But we have now obtained authentic specimens both from Merida[3] and San Esteban in Venezuela, and from Bartica Grove in British Guiana (the latter sent us by Mr. Whitely); and neither do these nor does our Panama specimen differ from the Jamaican bird. Moreover it has now become much more probable that the description by Vicomte DuBus of a bird from Ocaña in Colombia† as *Vireosylvia frenata* was based upon an individual of *V. calidris* captured in its winter quarters. Messrs. Newton[8] and Mr. Ober[5] both suspected that the birds observed in St. Croix and Dominica were migrants, arriving in the spring, remaining to breed, and departing again before winter; and on this point we have recently the positive testimony of Mr. Edward Newton, now residing in Jamaica, who assures us that *V. calidris* is certainly a migratory species in that island. The presence of the species on the continent of South America is thus satisfactorily explained; and we include *V. calidris* in this work without further hesitation. The fact, too, of this bird being migratory lessens very much indeed the probability of there being any distinct island forms.

* Nat. Hist. B. iii. p. 121, t. 121. f. 2.

† Bull. Ac. Brux. xxii. p. 150.

The nest of *Vireo calidris* is described by Mr. E. Newton [8] as shaped like an inverted cone, and composed outwardly of dried blades of grass, dead leaves, and wool, woven round the twigs, to which it was attached, with spiders' webs, lined inside with finer blades of grass, and about three inches and a half in diameter and five in height. The eggs, three in number, are white, with a few black spots of different sizes chiefly dispersed about the larger end. This nest with its eggs was found on June 5th, 1858, in a manchioneel tree in the island of St. Croix, and was suspended to the leafy part of a bough.

2. **Vireo olivaceus.**

Muscicapa olivacea, Linn. Syst. Nat. i. p. 327 [1].

Vireosylvia olivacea, Scl. P. Z. S. 1855, p. 151 [2]; 1859, p. 363 [3]; Scl. & Salv. Ibis, 1859, p. 12 [4]; P. Z. S. 1870, p. 836 [5]; 1879, p. 495 [6]; Baird, Rev. Am. B. i. p. 333 [7]; Lawr. Ann. Lyc. N. Y. ix. p. 96 [8]; v. Frantzius, J. f. Orn. 1869, p. 295 [9]; Baird, Brew. & Ridgw. N.-Am. B. i. p. 363 [10]; Sennett, Bull. U.S. Geol. Surv. iv. p. 16 [11].

Phyllomanes olivaceus, Cab. J. f. Orn. 1860, p. 404 [12]; Gundl. Orn. Cub. p. 55 [13].

Vireo olivaceus, Dresser, Ibis, 1865, p. 480 [14]; Coues, B. Col. Vall. i. p. 495 [15].

Vireo bogotensis, Bryant, Pr. Bost. Soc. N. H. vii. p. 227 [16].

Vireosylvia bogotensis, Lawr. Ann. Lyc. N. Y. viii. p. 6 [17].

Supra olivaceus, pileo cineraceo utrinque fusco marginato, loris fuscis, superciliis sordide albis; subtus albus, hypochondriis vix fusco-olivaceo indutis; rostro et pedibus corneis. Long. tota 5·0, alæ 3·0, caudæ 2·0, rostri a rictu 0·7, tarsi 0·7. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Obs. V. calidri similis, sine stria rictali fusca.

Hab. Eastern North America, north to Hudson's Bay, west to the Rocky Mountains [9 15], Texas [11 14].—Mexico, Jalapa (*de Oca* [3]); Guatemala [4], Coban, Dueñas (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [5]); Costa Rica, San José (*Carmiol* [8 9]), Dota Mountains (*Carmiol*); Panama, line of railway (*M'Leannan* [17]). —Colombia [2 6 16]; Cuba [13].

Prof. Baird recognized four species of this form in his 'Review of American Birds' [7]; but this number was reduced to two species, each with one variety, in the 'History of North-American Birds' [10]. Of these, *V. olivaceus* and *V. flavoviridis* have been unanimously allowed to stand as species distinct from one another; but the others, to which the names *V. agilis* and *V. chivi* have been applied, have experienced very varied treatment. Dr. Finsch* considers that, putting aside *V. flavoviridis*, only one species can be recognized, which he calls *V. olivacea*; the differences in the proportional lengths of the primaries, upon which Prof. Baird placed so much stress, he looks upon as individual variations not to be associated with the birds of any one district. Our selected series of Vireos of the *V. olivaceus* type consists of twenty specimens; and these are separable into two, perhaps three, races by the test of their wings. First we have the true *V. olivaceus* with the outer quill about equal to or a little shorter than the fourth. This is the North-American bird, which extends, probably in winter only, to

* P. Z. S. 1870, p. 565.

Central America and Colombia as far as the neighbourhood of Bogota. In Guiana, the Amazons valley, the province of Bahia in Brazil, and Eastern Bolivia we find a rather brighter-coloured bird, whose wing has the outer primary shorter than the fifth. This appears to be *V. agilis* or *V. chivi*, as it seems probable that these names apply to the same bird. On this latter point our materials are incomplete, as we have only one skin from Buenos Ayres, and this hardly differs from the more northern bird. On the whole we are disposed to keep *V. chivi* (vel *agilis*) distinct from *V. olivaceus*, of which the latter only immediately concerns us here. Prof. Baird, however, on the faith of a single skin supplied him by Gould, traces *V. agilis* to Guatemala [7 10]; but, in the absence of any other testimony, we hesitate to follow him in this point. Accurate records of the localities of his specimens of birds was never a matter of much consequence to Gould; and it may easily be that a mistake occurred in this case.

Vireo olivaceus, as thus restricted, is a very common bird in the Eastern States of North America, spreading westwards to the Rocky Mountains, and northward to the shores of Hudson's Bay, outlying stragglers having reached Greenland, and even England. In its southern migration, though it occurs in Texas, it has only once been recorded from Mexico [3]; and it is equally rare in Cuba [14]. In Guatemala it, though not common, has been more frequently met with, and as high as 5000 feet in the Volcan de Fuego near Dueñas. But it does not seek only a mountain retreat in winter; for the records of its occurrence in Honduras and Panama give places at or near the sea-level where specimens have been obtained. In Costa Rica and Colombia it again affects the mountains.

The pensile nest of *V. olivaceus* is well known in the States. It is placed between twigs of a forest tree, and is composed of fine strips of bark, fibres of plants, webs of spiders, &c. These are woven into a compact nest, which is always dependent from the twigs to which it is attached. The eggs are clear white, marked (chiefly at the larger end) with widely diffused spots and dots of red-brown [10].

3. **Vireo flavoviridis.**

Vireosylvia flavoviridis, Cassin, Pr. Ac. Phil. v. p. 153 [1]; Scl. P. Z. S. 1856, p. 298 [2]; 1859, p. 375 [3]; Scl. et Salv. Ibis, 1859, p. 12 [4]; Baird, Rev. Am. B. i. p. 336 [5]; Lawr. Ann. Lyc. N. Y. vii. p. 323 [6]; ix. p. 96 [7]; Bull. U.S. Nat. Mus. no. 4, p. 17 [8]; Mem. Bost. Soc. N. H. ii. p. 272 [9]; Salv. P. Z. S. 1867, p. 137 [10]; 1870, p. 184 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [12]; v. Frantzius, J. f. Orn. 1869, p. 295 [13]; Baird, Brew. & Ridgw. N.-Am. B. i. p. 366 [14]; Tacz. P. Z. S. 1874, p. 509 [15]; Merrill, Pr. U.S. Nat. Mus. i. p. 125 [16]; Bull. Nutt. Orn. Club, iii. p. 152 [17].

Vireo flavoviridis, Baird, U.S. Bound. Surv., Zool., Birds, p. 12 [18]; Coues, B. Col. Vall. i. p. 490 [19].

Phyllomanes flavoviridis, Cab. J. f. Orn. 1861, p. 93 [20].

Vireosylvia agilis flavo-viridis, Ridgw. Bull. U.S. Nat. Mus. no. 21, p. 19 [21].

V. olivaceo similis, sed hypochondriis et crisso multo lætius olivaceo-flavis distinguendus. (Descr. exempli ex Panama. Mus. nostr.)

Hab. North America, Texas [16 17].—Mexico (*Sallé* [2]), Monterey (*Couch* [18]), Mazatlan (*Grayson* [9]), Tres Marias (*Forrer*), Rosario (*Xantus* [9]), temperate region of Vera Cruz (*Sumichrast* [12]), Playa Vicente (*Boucard* [3]), Tapana and Santa Efigenia (*Sumichrast* [8]), Northern Yucatan (*Gaumer*); Guatemala (*Constancia* [4]), Retalhuleu, Chisec (*O. S. & F. D. G.*); Nicaragua, San Juan (*Barruel* [1]); Costa Rica [13 20], San José (*v. Frantzius* [7]), Atenas (*Cooper* [7]), Volcan de Irazu (*Rogers*); Panama (*Bell* [1]), Mina de Chorcha [11], Bugaba [11], Chitra [11], Cordillera de Tolé [10], Santa Fé [10] (*Arcé*), line of railway (*M'Leannan* [6]), Obispo station (*O. S.*), Paraiso station (*Hughes*).—Colombia; Ecuador; Peru [15]; Upper Amazons.

The most recent opinion as to the position of this species is that given by Mr. Ridgway [21], who treats it as an imperfectly segregated race of *V. agilis*, thus differing from Dr. Finsch, who placed the latter name as a synonym of *V. olivaceus*. The relationship of *V. agilis* to the other forms is somewhat intermediate, as it has the olive crissum and flanks of *V. flavoviridis*, but to a less extent, and like *V. olivaceus* shows a whiter belly. Compared with *V. olivaceus*, *V. flavoviridis* is obviously distinct, and may be so treated in this work.

Though this species has only just a footing in the United States, having been found on the Texas side of the Rio Grande, near Fort Brown [16], it seems to be generally distributed throughout Mexico and Central America, having been observed, as will be seen above, in nearly every section of this wide area. In South America, too, it has a wide range, from Colombia to Peru [15], and eastwards to Yquitos on the Amazons. From the last-mentioned place we have a single female specimen, sent us by Mr. Whitely, which was shot on the 16th October, 1878. It may thus well be that the birds observed in the far south are there during the winter season only. In the north it has been observed late in August at Fort Brown [16], and at Mazatlan from April to August. Grayson says it is not uncommon in the mangrove swamps near the last-named city, but that he did not see any after the breeding-season [9].

Mr. A. Forrer has recently sent us a single skin of a male bird which he shot on 4th May, 1881, on one of the Tres Marias Islands. This, though generally resembling the usual form of this bird, has but the faintest indication of the light superciliary mark. In the absence of any other character, and having only one specimen for comparison, we do not think more notice should be taken of it at present.

Regarding the range in altitude of *V. flavoviridis*, Prof. Sumichrast tells us he observed it, at a height of 4600 feet, in the mountains of Orizaba [12]; but our Guatemalan specimens are all from a lower level. In Panama, too, whence Cassin's original specimens were obtained, it occurs in places but slightly elevated above the sea.

Nothing is known relative to the breeding of this species.

b″. *Pileus immarginatus.*

4. Vireo magister.

Vireosylvia magister, Lawr. Ann. Lyc. N. Y. x. p. 20[1] (ex Baird, MS.); Baird, Brew. & Ridgw. N. Am. B. i. p. 359[2].

Major; supra fuliginoso-olivaceus, dorso postico magis virescente, pileo haud cinereo tincto, superciliis sordide albis; subtus similis, sed pallidior medialiter albescens, crisso et subalaribus vix flavo tinctis; remigibus intus albis. Long. alæ 3·05, caudæ 2·25, rostri a rictu ·85. (Descr. maris ex Belize. Mus. Smiths. exempl. typ.)

Hab. British Honduras, Belize (*C. Wood*[1], *Berendt*).

Of this species we describe the type specimen kindly lent us for that purpose by the authorities of the Smithsonian Institution, the only other example we have seen being one in the Museum of the Boston Society of Natural History. They evidently belong to a distinct species, which we have not met with ourselves. In the original description Mr. Lawrence compares it to *V. olivaceus* and the southern form of it *V. agilis*; but in the 'History of North-American Birds'[2] it is compared to *V. philadelphicus*, on account of the absence in both species of a dusky line on the sides of the crown. From *V. philadelphicus* it differs in its larger size and in not having any ashy tinge on the crown.

It exceeds even *V. olivaceus* in size, from which it differs also in not having an ashy crown. In some respects it resembles *V. calidris*, from which, however, it may be known by the absence of the rictal streak and the browner tint of the under-surface.

The presence of a distinct local species of this genus in British Honduras is somewhat remarkable; and we look forward with interest to the receipt of additional specimens.

5. Vireo philadelphicus.

Vireosylvia philadelphica, Cassin, Pr. Ac. Phil. v. p. 153[1]; Scl. & Salv. Ibis, 1859, p. 12[2]; Baird, Rev. Am. B. i. p. 340[3]; Lawr. Ann. Lyc. N. Y. ix. p. 96[4]; v. Frantz. J. f. Orn. 1869, p. 295[5]; Salv. P. Z. S. 1870, p. 184[6]; Baird, Brew. & Ridgw. N. Am. B. i. p. 367[7].

Vireo philadelphicus, Coues, B. Col. Vall. i. p. 492[8].

Vireosylvia cobanensis, Scl. P. Z. S. 1860, p. 463[9].

Supra plumbescenti-olivaceus, pileo pure plumbeo, superciliis et ciliis ipsis albis; subtus flavescenti-albidus, abdomine medio albicante; rostro corneo, pedibus plumbeis. Long. tota 4·8, alæ 2·65, caudæ 1·9, rostri a rictu 0·55, tarsi 0·7. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Hab. Eastern North America to Hudson's Bay[7 8], Philadelphia[1].—Guatemala[2], Coban[9], Tactic[9], Retalhuleu, Volcan de Agua above San Diego (*O. S. & F. D. G.*); Costa Rica[5], San José[3 4], Grecia[4], Dota Mountains[4] (*Carmiol*); Panama, Volcan de Chiriqui, Chitra[6] (*Arcé*).

Described in 1851 from a specimen obtained by Cassin near Philadelphia [1], this *Vireo* has gradually but slowly become known as an inhabitant of the whole of the eastern portion of North America from Hudson's Bay southwards, the valley of the Mississippi being the area where it is most abundant and through which its main line of migration passes. As yet its presence has not been detected in Mexico, though it probably occurs in the southern States of that republic. In Guatemala it is abundant in the winter months, chiefly in Alta Vera Paz; but it is not confined to that portion of the country, as we have specimens obtained near Retalhuleu and on the slopes of the Volcan de Agua, and therefore in sight of and not far from the Pacific Ocean. Thence the species spreads to Costa Rica and the adjoining parts of the State of Panama.

The Guatemalan specimens obtained by us prior to 1860 were described by Mr. Sclater as *V. cobanensis* [9], under the impression that the species was distinct from *V. philadelphicus*, with which they had previously been associated [2]. Their identity was subsequently proved by Prof. Baird, who had ample opportunity for comparing the two birds [3].

Vireo philadelphicus probably breeds throughout its North-American range; but up to 1874 neither nest or eggs had been discovered [7].

b′. *Remex spurius obvius.*

6. Vireo gilvus.

Muscicapa gilva, Vieill. Ois. Am. Sept. i. p. 65, t. 34 [1].

Vireo gilva, Scl. P. Z. S. 1858, p. 302 [2]; Dresser, Ibis, 1865, p. 480 [3].

Vireosylvia gilva, Scl. P. Z. S. 1856, p. 298 [4]; Baird, Rev. Am. B. i. p. 342 [5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548 [6]; Baird, Brew. & Ridgw. N. Am. B. i. p. 368 [7]; Salv. Cat. Strickl. Coll. p. 112 [8].

Vireosylvia gilva, var. *swainsoni*, Lawr. Bull. U.S. Nat. Mus. no. 4, p. 17 [9].

Vireo gilvus swainsoni, Coues, B. Col. Vall. p. 501 [10].

Obscure olivaceus, pileo cinerascentiore, capitis lateribus pallide fuscis; superciliis et corpore subtus gilvo-albidis, hypochondriis vix ochraceo-flavicantibus, alis (immaculatis) et cauda dorso fere concoloribus; rostro corneo, mandibula pallidiore, pedibus plumbeis. Long. tota 4·8, alæ 2·8, caudæ 2·05, rostri a rictu 0·7, tarsi 0·7. (Descr. maris ex San Pedro, Mexico. Mus. Ac. Cantabr.)

Hab. Temperate North America [1], Texas [3], Arizona [10].—Mexico (*Sallé* [4]), San Pedro (*Galeotti* [8]), State of Vera Cruz (*Sumichrast* [6]), Oaxaca (*Boucard* [2]), Santa Efigenia (*Sumichrast* [9]).

Two races of this species, an eastern and a western, have been recognized by many writers on North-American birds, the eastern race being the true *V. gilvus*, and the western *V. swainsoni*, or, according to some recent nomenclature, *V. gilvus swainsoni*. The western bird is a trifle smaller and greyer above, the underparts being whiter, hardly tinged with buff. But the differences are exceedingly slight, so much so that Dr. Coues expresses himself as without much confidence in the reality of the distinction

which has been sought to be maintained, though he separates the references to the two races under their respective heads. So far as Mexico is concerned, there can be no doubt that the true *V. gilvus* occurs there, as the specimen obtained by Galeotti at San Pedro (a male, shot in December 1844, and now in the Strickland collection at Cambridge [8]) is precisely like one, also a male, shot by Prof. Baird at Carlisle, Pennsylvania, in May 1847. The western race also occurs in Mexico; for not only is it found on the immediate frontier, but Mr. Lawrence has recognized it in specimens sent from the isthmus of Tehuantepec by Prof. Sumichrast [9]. *Vireo gilvus*, however, seems to be nowhere common in Mexico in either of its forms; nor does it pass southwards into Guatemala or any other of the Central-American States.

In North America it is known as the Warbling Greenlet, from the fine quality of its song in the breeding-season; and it may be heard from May to July throughout the day in places frequented by it. It is a very familiar species in the Eastern States, and may be seen and heard even in the large towns wherever clumps of large trees grow. Both Brewer [7] and Dr. Coues [10] give full accounts of its habits and of its nest and eggs. The nest, whilst resembling those of its congeners in the nature of its materials and in its pendent position, is, as a rule, more carefully built. It is suspended at a height of thirty to fifty feet from the ground, and sometimes even in the top of a large elm.

The eggs are, like those of other Vireos, crystal-white with a few scattered spots of dark brown and others of a lighter shade [7].

7. **Vireo amauronotus,** sp. n.

Vireosylvia gilva, var. *josephæ,* Ridgw. in Baird, Brew. & Ridgw. N. Am. B. i. p. 360, note [1].

V. gilvo similis, sed capite summo haud cinereo, dorso brunneo fere concolori distinguendus, a *V. josephæ* capite dorso fere concolori nec nigricanti-brunneo et abdomine fere albicante quoque differt. (Descr. exempl. ex Orizaba, Mexico. Mus. Smiths. no. 54262.)

Hab. Mexico, Orizaba (*Sumichrast* [1]).

It is not without considerable hesitation that we describe this bird, which presents characters intermediate between *V. gilvus* on the one hand and *V. josephæ* on the other, but which cannot well be placed with either. Mr. Ridgway in referring to the single specimen described above, and which he has kindly sent to us for examination, looks upon it as justifying the treatment of *V. gilvus* and *V. josephæ* as imperfectly segregated races of the same form [1]. This may prove to be the case; but when we consider that *V. gilvus* is a migratory species, reaching Southern Mexico at furthest in winter, and the obvious differences that it possesses from *V. josephæ*, for any thing we know to the contrary a resident species in Costa Rica, Colombia, and Ecuador, and that the two birds have not yet been shown to come within 1000 miles of one another, this seems to be a rather sweeping generalization. We therefore incline to what appears to be a more probable solution of the difficulty by considering the Orizaba bird as belonging to

another resident form of this group of Vireos, and therefore give it a distinct name. At the same time it is highly desirable that more specimens should be sought for and examined to place the bird on a settled footing.

8. **Vireo josephæ.**

Vireosylvia josephæ, Scl. P. Z. S. 1859, p. 137, t. 154[1]; Baird, Rev. Am. B. i. p. 344[2]; Lawr. Ann. Lyc. N. Y. ix. p. 96[3]; v. Frantzius, J. f. Orn. 1869, p. 295[4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 360[5]; Tacz. P. Z. S. 1874, p. 509[6]; Scl. & Salv. P. Z. S. 1879, p. 495[7]; Salv. Cat. Strickl. Coll. p. 112[8].

Supra fuscescenti-olivaceus, pileo multo saturatiore, uropygio paulo dilutiore, alis et cauda intus nigricantibus extus dorso concoloribus, superciliis distinctis albis, capitis lateribus cinereis; subtus gula alba, corpore reliquo flavescente, subalaribus albis flavo perfusis; rostri maxilla cornea, mandibula pallida; pedibus plumbeis. Long. tota 4·9, alæ 2·6, caudæ 2·05, rostri a rictu 0·7, tarsi 0·65. (Descr. maris ex Barranca, Costa Rica. Mus. nostr.)

Hab. Costa Rica[4], Barranca[2 3], Rancho Redondo[3], Dota Mountains[2 3] (*Carmiol*); Panama, Volcan de Chiriqui (*Arcé*).—Colombia[2 7 8]; Ecuador[1]; Peru[6].

Fraser is the recognized discoverer of this species, as his specimens, obtained near Pallatanga, in Ecuador, were the types of Mr. Sclater's description[1]; but an example from Bogota has been lying in the Strickland collection since the year 1844[8]. We also possess specimens from Jima, in Ecuador, and from the vicinity of Pasto, further north. Skins of it may also be found in trade collections from Bogota; and it has been traced still further north in Colombia by Salmon, who sent specimens from the neighbourhood of Medellin, in the Cauca valley. In Central America we only know it from Costa Rica and the adjoining parts of the State of Panama; and from this we infer that the bird affects mountainous districts of moderate elevation, where it is most probably resident, and that it does not frequent low-lying lands near the sea-level.

As already stated, in tracing the alliances of this species, Mr. Ridgway, in the 'History of North-American Birds,'[5] refers to a specimen in the National Collection at Washington, sent from Orizaba by Prof. Sumichrast, which is quite intermediate between *V. gilvus* and the present bird. He therefore places *V. josephæ* as a "variety" of *V. gilvus*. The two birds in their normal dress are so different that we hesitate to follow this course. The ranges of the two birds are separated, so far as our present knowledge goes, by a very wide interval; and it seems to us unlikely that a complete intergradation takes place between the two in any locality hitherto ornithologically unexplored.

b. *Corpus robustum; rostrum breve, robustum; pedes robustiores.* (Lanivireo.)

c'. *Remex spurius obsoletus, oculorum ambitus et gula flava.*

9. **Vireo flavifrons.**

Vireo flavifrons, Vieill. Ois. Am. Sept. i. p. 85, t. 54[1]; Scl. P. Z. S. 1857, p. 227[2]; 1860, p. 251[3];

Scl. & Salv. Ibis, 1859, p. 12[4]; Lawr. Ann. Lyc. N. Y. vii. p. 323[5]; Bull. U.S. Nat. Mus. no. 4, p. 17[6]; Wyatt, Ibis, 1871, p. 324[7]; Coues, B. Col. Vall. i. p. 493[8]; Gundl. Orn. Cub. p. 56[9].

Vireosylvia flavifrons, Baird, Rev. Am. B. i. p. 346[10]; Salv. P.Z.S. 1870, p. 184[11]; Salv. & Godm. Ibis, 1880, p. 118[12].

Lanivireo flavifrons, Lawr. Ann. Lyc. N. Y. ix. p. 96[13]; v. Frantzius, J. f. Orn. 1869, p. 295[14]; Baird, Brew. & Ridgw. N. Am. B. i. p. 379[15].

Supra læte flavo-olivaceus, dorso imo et tectricibus supracaudalibus plumbeis; alis et cauda nigris, extus albo limbatis, illis albo bifasciatis; striis a naribus oculorum ambitu conjunctis et corpore subtus usque ad medium ventrem læte flavis, loris ipsis nigricantibus, abdomine imo et crisso albis; rostro et pedibus plumbeis. Long. tota 5·0, alæ 2·9, caudæ 2·0, rostri a rictu 0·65, tarsi 0·75. (Descr. exempl. ex San Gerónimo, Guatemala. Mus. nostr.)

Hab. Eastern United States[15] and British Provinces[8].—Mexico, Santecomapam (*Boucard*[2]), Orizaba (*Sallé*[3]), Santa Efigenia, Tehuantepec, Gineta Mountains (*Sumichrast*[5]); Guatemala[4], Coban, Choctum, Lanquin, San Gerónimo, Dueñas, Volcan de Fuego, San José de Guatemala (*O. S. & F. D. G.*); Costa Rica (*v. Frantzius*[14], *Endres*), Volcan de Irazu (*Rogers*), Grecia[10] (*Carmiol*), Punta Arenas (*Dow*[10]), San José (*Carmiol*[13]); Panama, Volcan de Chiriqui[11], Calovevora[11], Chitra (*Arcé*), line of railway (*M'Leannan*[5]), Paraiso station (*Hughes*).—Colombia[7 12]; Cuba[9].

Many birds whose summer quarters are in the eastern section of the North-American continent are absent from Western Mexico in winter, are not common even in the Southern States of that country, and only become abundant in Guatemala and the countries lying further south. Thus the well-known eastern bird *Vireo flavifrons* has only been recorded from the State of Vera Cruz, in Mexico, till we come to the Isthmus of Tehuantepec, where it would appear to be more numerous. In Guatemala it spreads over the whole country, being equally abundant in Costa Rica. In the State of Panama, too, it is frequently found in collections made in that country in the winter months. In Colombia it would appear to be less common, but we have records of it from Minca, near Santa Marta[12], and from Pirico, in the Magdalena valley[7]; we have also a trade skin from the neighbourhood of Bogota in our collection, the most southern point we know of its occurrence. Dr. Gundlach speaks of having frequently met with *V. flavifrons* in Cuba[9]; but he is uncertain whether it is a sedentary species or a migrant. In Guatemala, as already stated, it is common in the winter season. We observed it as early as September 10th, and thence till March. In the environs of Coban it is to be found more abundantly than elsewhere, frequenting the borders of the plantations and the trees of the gardens in the outskirts of the town.

In the United States it is a very familiar species; and Brewer gives a full account of its habits[15]. Like other Vireos it builds a pendent nest, which, however, may be distinguished by the profusion of lichens and mosses with which the outer portion is

adorned. The eggs when fresh have a roseate tint to the white ground-colour; and they are more or less boldly marked with blotches of dark roseate brown [15].

d'. *Remex spurius obvius, oculorum ambitus et gula alba.*

10. Vireo solitarius.

Muscicapa solitaria, Wils. Am. Orn. ii. p. 143, t. 17. f. 6 [1].

Vireo solitarius, Scl. P. Z. S. 1856, p. 298 [2]; 1859, pp. 363 [3], 375 [4]; Scl. & Salv. Ibis, 1860, p. 31 [5]; Dresser, Ibis, 1865, p. 481 [6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 272 [7]; Coues, B. Col. Vall. i. p. 505 [8]; Gundl. Orn. Cub. p. 56 [9].

Vireosylvia solitaria, Baird, Rev. Am. B. i. p. 347 [10]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548 [11].

Lanivireo solitaria, Baird, Brew. & Ridgw. N. Am. B. i. p. 373 [12]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 18 [13].

Lanius solitarius, Licht. Preis-Verz. mex. Vög. p. 2 [14] (cf. J. Orn. 1863, p. 58).

Vireosylvia propinqua, Baird, Rev. Am. B. i. p. 348 [15]?

Supra flavo-olivaceus, pileo et capitis lateribus plumbeis; alis et cauda nigris albido limbatis, illis albido bifasciatis, striis a naribus oculorum ambitu conjunctis albis; subtus albus, hypochondriis flavis; rostro et pedibus plumbeis. Long. tota 5·0, alæ 2·85, caudæ 2·0, rostri a rictu 0·65, tarsi 0·75. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. United States generally [12] and Canada [8], Texas [6].—Mexico (*Deppe* [10 14], *Sallé* [2]), Mazatlan (*Grayson* [7]), Jalapa (*de Oca* [3]), Orizaba (*Sumichrast* [10 11], *Botteri* [10]), Talea (*Boucard* [4]), Santa Efigenia, Tehuantepec, Gineta Mountains (*Sumichrast* [13]); Guatemala, Coban [5 15], Cahabon, Volcan de Fuego, Volcan de Agua (*O. S. & F. D. G.*).—Cuba [9].

A winter visitant to Mexico and Guatemala, beyond which latter country it does not appear to pass. Here, however, it is common in the mountainous parts at elevations varying from 7000 to 8000 feet in the great volcanoes of Agua and Fuego, to 4300 feet at Coban, and even to the low level of Cahabon, which lies at an elevation of less than 1000 feet above the sea. In the neighbourhood of Coban it is very abundant, and is one of the birds that falls a prey to the blowpipes of the boys of the town, the outskirts of which it frequents.

The occurrence of this species in Cuba is confined to a single instance, when Dr. Gundlach shot a specimen near Cardenas at the end of March 1844.

In North America *V. solitarius* is very widely distributed; but in the more southern States it is known only as a bird of passage, though Dr. Coues thinks that some retire to the higher mountains of Colorado to breed. But its breeding-quarters lie chiefly to the north of the fortieth parallel of latitude [8].

Brewer describes several nests taken in Massachusetts, which varied considerably in their structure, some being loose and others more compact, but all suspended to the twigs to which they were attached, as is usual with the members of this family of birds. The eggs, like those of other large Vireos, are pure white speckled with reddish,

sometimes over the whole surface, but oftener chiefly at the larger end[13]. Brewer describes its song as peculiar, being a frequent repetition of the same notes.

Regarding the bird from Coban, in Guatemala, described by Prof. Baird as *Vireosylvia propinqua*[15], we are in some doubt as to its position, as we have never seen a second specimen presenting the same differences from *Vireo solitarius* that Prof. Baird's type does, which we have again before us for examination. These differences are as follows:—The grey of the head is more restricted, the olive colour of the back extending over the nape and to behind the ears; the upper tail-coverts are ashy instead of olive; the sides of the throat are yellow instead of white; the flanks are white tinged with olive, not olive-green tinged with yellow; the anal region is white, not yellow; the spurious primary is much smaller, and the second quill longer instead of shorter than the fifth; the wing is slightly longer, and the bill broader at the base. These are the differences pointed out by Prof. Baird; and we find that they are all as he describes them. They are all small individually, but taken together are certainly remarkable; and it is noteworthy that they nearly all are slight divergences from the typical *V. solitarius* in the direction of *V. flavifrons*! Have we here the remains of some cross between these two birds? The type of *V. propinquus* was obtained with numbers of the true *V. solitarius* and *V. flavifrons* at their winter quarters near Coban; and the discrepancies from *V. solitarius* were not noticed at the time, nor, indeed, till Prof. Baird pointed them out. That a resident local race of *V. solitarius* exists in Guatemala[13] we hesitate to believe until further evidence can be produced; and in the meantime we leave *V. propinquus* in an uncertain position, with the above suggestion as to its origin.

11. **Vireo cassini.**

Vireo cassinii, Xantus, Pr. Ac. Phil. 1858, p. 117[1].
Lanivireo solitarius, var. *cassini*, Baird, Brew. & Ridgw. N. Am. B. i. p. 376[2].
Vireo solitarius cassini, Coues, B. Col. Vall. i. p. 514[3].
Vireosylvia solitaria, Salv. Cat. Strickl. Col. p. 112[4] (partim).

V. solitario similis, sed pileo cinereo olivaceo tincto fere dorso concolori et pectore pallide fulvo perfuso vix distinguendus. (Descr. exempl. ex Mexico. Mus. Ac. Cantabr.)

Hab. North America, California[1 2], Nevada[2], Arizona[3].—Mexico (*Galeotti*[4]).

A single skin in the Strickland collection, sent from Mexico by Galeotti in 1845, we recognize as belonging to this race, as it agrees with authentic specimens from Calaveras county, California, recently forwarded to us by Mr. Ridgway. The bird would appear to be not uncommon in the Gila valley, where Mr. Henshaw met with it at the end of August and in September, in company with but rarer than *V. solitarius*, the only difference in the habits of the two birds being the preference of the former for deciduous trees, the latter choosing the coniferous timber[3]. The appearance of these

birds here at this time of year indicates that they breed in some more northern locality, which, however, has not yet been traced. The difference between *V. cassini* and *V. solitarius* is but slight, and consists chiefly in the head of the former being almost the same colour as the back instead of grey, and in the breast being tinged with fawn colour. These differences are blended by intermediate specimens, according to writers on North-American birds[2]; but the extremes are sufficiently varied to justify each bearing a distinctive title.

12. **Vireo plumbeus.**

Vireo plumbeus, Coues, Pr. Ac. Phil. 1866, p. 74[1]; B. Col. Vall. i. p. 515[2]; Lawr. Mem. Bost. Soc. N. H. ii. p. 272[3].

Vireosylvia plumbea, Baird, Rev. Am. B. i. p. 349[4].

Lanivireo solitarius, var. *plumbeus*, Baird, Brew. & Ridgw. N. Am. B. i. p. 377[5].

Supra plumbeus, oculis albo conspicillatis; alis et cauda nigris, extus albo limbatis, illis albo bifasciatis; subtus albus, hypochondriis plumbeo lavatis; rostro et pedibus plumbeis. Long. tota 5·0, alæ 3·3, caudæ 2·3, rostri a rictu 0·6, tarsi 0·72. (Descr. exempl. ex Oaxaca, Mexico. Mus. nostr.)

Hab. United States, Southern Rocky-Mountain region[2 5], Arizona[1].—Mexico, plains of Colima (*Xantus*[2 3 4]), Oaxaca (*Fenochio*).

The position of this bird appears to be not yet fully established, American ornithologists, to whom it is best known, differing as to whether it should be granted full specific rank as *V. plumbeus*, which is Dr. Coues's (its discoverer's) view, or whether it is still linked with *V. solitarius*, and should stand as *V. solitarius plumbeus*, as maintained by Mr. Ridgway in his recent list of North-American birds (1881). Be this as it may, the normal *V. plumbeus* is a bird easily to be distinguished from *V. solitarius*, and therefore entitled to a name.

As already stated, Dr. Coues discovered this bird, near Fort Whipple in Arizona[1], where he found it in pine-woods during the summer, replacing *V. solitarius* at that season of the year. It has also been traced to Laramie Peak[1], Colorado, New Mexico, and Utah, thus embracing the southern portion of the Rocky-Mountain region. The only recorded instance of its occurrence in Mexico is based upon a specimen obtained by Xantus in the plains of Colima in February 1863[2 3 4]; but we now have to mention a second Mexican locality some distance further south, a specimen having been sent us some time ago from the vicinity of the town of Oaxaca by Don A. Fenochio.

Little is recorded of the habits of *V. plumbeus*, which are said to resemble those of *V. solitarius*. The nest and eggs taken by Mr. Aiken in Colorado are stated to be substantially identical with those of its near ally.

B. *Alæ breves, cauda vix longiores aut paulo breviores; remex primus magnus.* (Vireo.)

a. *Alæ acutiusculæ.*

a'. *Pileus niger.*

13. Vireo atricapillus.

Vireo atricapillus, Woodhouse, Pr. Ac. Phil. vi. p. 60[1]; Baird, U.S. Bound. Surv., Zool., Birds, p. 12[2]; Rev. Am. B. i. p. 353[3]; Baird, Brew. & Ridgw. N. Am. B. i. p. 383[4]; Lawr. Mem. Bost. Soc. N. H. ii. p. 272[5]; Deane, Bull. Nutt. Orn. Club, iv. p. 58[6]; Brewster, Bull. Nutt. Orn. Club, iv. p. 99[7]; Coues, Bull. Nutt. Orn. Club, iv. p. 193, t. 1[8].

"Supra olivaceo-virescens, capitis lateribus et pileo nigris; alis et cauda supra nigricantibus olivaceo limbatis, tectricibus alarum viridi-albo bifasciatis; oculis albo conspicillatis; subtus albus, hypochondriis olivaceis; subalaribus et crisso (?) flavicantibus; rostro nigro, pedibus plumbeis. Long. tota 4·75, alæ 2·12, caudæ 1·95." (Descr. ex Baird, Brew. & Ridgw. i. p. 383, compilata.)

"♀ (potius av. juvenis). Capitis lateribus et pileo obscure schistaceis nec nigris; subtus ochraceo tincta. (An avis alia?)" (Descr. exempl. ex Mazatlan, Mexico, ex Baird, Brew. & Ridgw. i. p. 383).

Hab. North America, South-western Texas [1 2 3 6 7].—Mexico, Mazatlan (*Grayson* [4 5])?

The only actual claim of this species to a place in this work rests upon a specimen obtained at Mazatlan by the late Col. A. J. Grayson. This is a female bird, differing from the male in having the head dull slate-colour instead of black. At the time that they placed this specimen here, the authors of the 'History of North-American Birds' expressed a doubt as to their identification of it[4]. These doubts are much strengthened by the fact, since brought to light[7], that the sexes in this species do not materially differ in colour. The Mazatlan bird, therefore, must either belong to a different species, or be in a state of plumage not yet satisfactorily explained. That the true *V. atricapillus* will be found along the northern frontier of Mexico can hardly be doubted; but as yet it has only been met with in a very limited district on the Texan side of the Rio Grande valley. Up to 1879 hardly any thing was known of *V. atricapillus*, some three or four skins being all that had been obtained during the twenty-eight years that had elapsed since its discovery. But in that year not only were more specimens obtained, but its nest and eggs were also discovered, and observations made on its habits, which now render its history fairly complete. The original specimens of this species were obtained on the Rio San Pedro near El Paso by Dr. Woodhouse[1]; and shortly afterwards another was shot by Mr. J. H. Clark of the Boundary Survey[2].

The recent acquisitions are from Messrs. Ragsdale and Norris, an account of whose captures is given by Mr. Ruthven Deane[6], and from Mr. Werner, to whom Mr. Brewster acts sponsor[7]. Dr. Elliott Coues also reverts to the same subject, giving a plate of two birds and their nest, the latter taken from a drawing by Mr. Werner[8]. The nest is described as pendent, as usual in the members of this family, and composed of dried leaves and grass woven together with spiders' webs, and lined with fine grass and rootlets. The eggs are described as being pure white, without spots of any kind.

b′. *Pileus aut olivaceus aut cinereus; alæ bifasciatæ.*

a″. *Subtus medialiter albus; hypochondria flava.*

14. **Vireo noveboracensis.**

Muscicapa noveboracensis, Gm. Syst. Nat. i. p. 947[1].

Vireo noveboracensis, Scl. P. Z. S. 1857, pp. 204[2], 228[3]; Baird, U.S. Bound. Surv., Zool., Birds, p. 12[4]; Rev. Am. B. i. p. 354[5]; Jones, Nat. in Bermuda, p. 71[6]; Scl. & Salv. Ibis, 1860, p. 274[7]; Dresser, Ibis, 1865, p. 481[8]; Baird, Brew. & Ridgw. N. Am. B. i. p. 385[9]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 17[10]; Gundl. Orn. Cub. p. 56[11]; Coues, B. Col. Vall. i. p. 520[12].

Lanius noveboracensis, Licht. Preis-Verz. mex. Vög. p. 2; cf. J. f. Orn. 1863, p. 58[13].

Supra olivaceo-virescens, oculis flavo conspicillatis; alis et cauda nigricantibus, illis flavido-albo limbatis et bifasciatis, hac dorsi colore marginata; subtus albidus, pectore fusco lavato, hypochondriis flavis; rostro et pedibus plumbeis; iridibus (ave viva) albis. Long. tota 4·4, alæ 2·3, caudæ 1·85, rostri a rictu 0·65, tarsi 0·75. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Hab. Eastern United States[9 12], Texas[4 8].—Mexico[13], Real Ariba and Valle Real (*Deppe*), Jalapa (*Sallé*[2]), Santecomapam (*Boucard*[3]), Merida in Yucatan (*Schott*[5]), Santa Efigenia (*Sumichrast*[10]); Guatemala, Coban (*O. S. & F. D. G.*[7]); Honduras[5].—Bermuda[6]; Cuba[7].

The "White-eyed Vireo," by which name this species is known in the United States, visits Mexico and Guatemala during the winter months; but, though not uncommon in the former country, it appears to be very rare in Guatemala, as we only obtained a single specimen in November 1859, and none have since reached us from any other part of the country. Prof. Baird gives Honduras as one of the localities of this species on Mr. Sclater's authority; but the collector's name is not recorded. In Cuba, Dr. Gundlach tells us, its appearance is uncertain[11]; and it is doubtless a bird of passage in this island; but in Bermuda it is not only a common bird, but a resident, breeding there regularly[6]. A specimen in the collection of the Smithsonian Institution, also from Mr. Sclater, is marked as coming from "Colombia"[5]; but this locality requires confirmation, as we have no other evidence of any thing like such an extension of its winter range.

In the United States it is one of the commonest and most widely diffused birds east of the Rocky Mountains, breeding in all parts of the Union. Its familiar habits and song are fully described by Brewer[9] and Dr. Coues[12].

The nest is described as suspended from the ends of the twigs of low bushes, and as composed of very varied materials, all wrapped with strong vegetable fibres, the lining being finer stems of grass and dry needles of pine. The eggs are clear crystal-white, spotted about the larger end with fine dark purple and reddish-brown dots.

15. **Vireo belli.**

Vireo belli, Aud. B. Am. vii. p. 333, t. 485[1]; Baird, Rev. Am. B. i. p. 358[2]; Dresser, Ibis, 1865,

p. 481[3]; Baird, Brew. & Ridgw. N. Am. B. i. p. 389[4]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 18[5]; Coues, B. Col. Vall. i. p. 526[6]; Salv. Cat. Strickl. Coll. p. 113[7].

Supra olivaceus, pileo cinerascente, oculis albo conspicillatis; alis et cauda nigricantibus, illis sordide albo limbatis et indistincte bifasciatis, hac dorsi colore marginata; subtus albus, hypochondriis ochraceo indutis; rostro et pedibus plumbeis. Long. tota 4·6, alæ 2·2, caudæ 1·9, rostri a rictu 0·65, tarsi 0·8. (Descr. exempl. ex Mazatlan, Mexico. Mus. nostr.)

Obs. *V. noveboracensi* similis, sed inter alia oculis albo nec flavo conspicillatis distinguendus.

Hab. North America, Missouri river to the base of the Rocky Mountains[4], Arizona[6], Texas[3].—Mexico (*Galeotti*[7]), Mazatlan (*Forrer*), Santa Efigenia and Tehuantepec city (*Sumichrast*[5]).

This species is probably only a migrant to the isthmus of Tehuantepec, where Prof. Sumichrast observed it in October and December[5]. From Guatemala we have as yet no tidings of it, nor, indeed, from any other part of Mexico, except the single specimen obtained by Galeotti in 1845, which is now in the collection of the University of Cambridge[7], and one recently sent us by Mr. A. Forrer from the neighbourhood of Mazatlan. Just across the northern frontier of Mexico *V. belli* is not only common, but remains to breed, at least in Texas[3]; and it was observed by Mr. Henshaw in the Gila valley in September[6]. Further north its head quarters in summer lie between the Missouri river (where Audubon first discovered it) and the base of the Rocky Mountains; and here it breeds. It will be seen that, the bird being scarce in Mexico, its winter quarters are not yet satisfactorily determined.

Mr. Dresser describes the nest as formed of fine grass, and hung from the twigs of a tree. The eggs, he says, are white, with an occasional reddish dot at the larger end[3].

b″. *Subtus fere unicolor.*

a‴. *Rostrum robustum.*

16. **Vireo ochraceus.** (Tab. XII. fig. 1.)

Vireo ochraceus, Salv. P. Z. S. 1863, p. 188[1]; Baird, Rev. Am. B. i. p. 366[2]; Lawr. Mem. Bost. Soc. N. H. ii. p. 272[3].

Vireo semiflavus, Salv. P. Z. S. 1863, p. 188[4].

Supra ochraceo-olivaceus, stria præoculari flavida; alis et cauda fusco-nigricantibus, illis albido marginatis et bifasciatis, hac dorsi colore limbata; subtus ochraceo-flavidus, gula pallidiore; rostri maxilla pallide cornea, mandibula albida. Long. tota 4·5, alæ 2·2, caudæ 1·8, rostri a rictu 0·6, tarsi 0·8. (Descr. feminæ ex San José de Guatemala. Mus. nostr.)

Obs. Mas aut avis adultus corpore supra minus ochraceo et subtus flavescentiore differt.

Hab. Mexico, Mazatlan (*Grayson*[2 3]), Merida in Yucatan (*Schott*[2]), Progreso in Yucatan (*Gaumer*); British Honduras, Corosal (*Roe*); Guatemala, Sakluk near Peten (*O. S.*[4]), San José de Guatemala (*O. S.*[1]).

When the specimens from San José de Guatemala and Sakluk were first examined they were supposed to belong to two distinct species, as they presented not only

PL. 15

differences of colour, but also in the relative length of the spurious primary. They were therefore described as *Vireo ochraceus*[1] and *V. semiflavus*[4] respectively. Prof. Baird, however, to whom the types were submitted with the advantage of two additional specimens for examination, came to the conclusion that the differences observable were not greater than might be expected in birds shot, the one in January and the other in April. He therefore united *V. ochraceus* and *V. semiflavus* under the former name[2]. We now possess two additional examples: one, from Progreso, agrees with the type of *V. semiflavus*; the other, from Corosal in British Honduras, is exactly similar to *V. ochraceus*. Any supposed difference in locality is therefore broken down, and Prof. Baird's view strengthened rather than otherwise. We therefore follow him in placing *V. semiflavus* as a synonym of *V. ochraceus*; at the same time we may remark *en passant* that the difference between the types is more pronounced than those to be traced between such races as *V. solitarius*, *V. cassini*, and *V. propinquus*, or *V. gilva* and *V. swainsoni*.

V. ochraceus is a little-known bird, and only twice came under our observation—once in April 1862 in a copse in the savana country near Sakluk, in the Department of Peten, and again in January 1863 in the woods skirting the Pacific shore near the Guatemalan port of San José. From this last bird, a female, our figure is taken.

17. **Vireo pallens.** (Tab. XII. fig. 2.)

Vireo pallens, Salv. P. Z. S. 1863, p. 188[1]; Ibis, 1866, p. 193[2]; Baird, Rev. Am. B. i. p. 365[3].

Supra obscure olivaceus; tænia præoculari pallide flava; subtus sordide albus flavido vix tinctus; alis et cauda nigricanti-fuscis, illis albido limbatis et bifasciatis, hac dorsi colore marginata; rostri maxilla pallide cornea, mandibula albida. Long. tota 4·6, alæ 2·3, caudæ 1·9, rostri a rictu 0·65, tarsi 0·85. (Descr. maris ex Punta Arenas, Costa Rica. Mus. nostr.)

Hab. NICARAGUA, Realejo[2] (*J. M. Dow & O. S.*[1]); COSTA RICA, Punta Arenas (*J. M. Dow & O. S.*[1]).

Of this species nothing, so far as we know, has been noticed since the original specimens were procured in March 1863 at Realejo (now called Corinto) and at Punta Arenas by Capt. Dow and Salvin during a voyage from Guatemala to Panama. In both cases the birds were found in the woods behind those seaport towns. In their habits nothing of special note was observed. In its general appearance this bird is not unlike *V. pusillus* of Arizona and Lower California, having hardly any olive-colour in its plumage, the upper parts being ashy, and the under parts white, with but a very faint shade of olive-colour*. It may be distinguished from *V. pusillus* by the presence of two white bands on the wings instead of only one, and in the wings being more rounded. The shape and size of *V. pallens* is much that of *V. ochraceus*; but it wants the colour of that bird, besides having a longer spurious first primary. The Punta Arenas specimen, a male, is figured.

* The figure is rather too highly coloured.

b‴. *Rostrum debile.*

18. **Vireo huttoni.**

Vireo huttoni, Cassin, Pr. Ac. Phil. v. p. 150[1]; Scl. P. Z. S. 1858, p. 302[2]; 1862, p. 19[3]; Baird, Mex. Bound. Surv. ii. Zool., Birds, p. 12[4]; Rev. Am. B. i. p. 357[5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548[6]; Baird, Brew. & Ridgw. N. Am. B. i. p. 387[7]; Salv. Ibis, 1874, p. 99[8]; Coues, B. Col. Vall. i. p. 525[9].

Supra sordide olivaceus, pileo paullo cinerascente; oculis sordide albo conspicillatis; alis et cauda fusco-nigris dorsi colore limbatis, illis albido bifasciatis; subtus dilutior, abdomine medio albicantiore; rostro corneo, pedibus plumbeis. Long. tota 4·6, alæ 2·5, caudæ 1·95, rostri a rictu 0·6, tarsi 0·72. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. North America, California[1 7].—Mexico, Monterey (*Couch*[4]), alpine region of Vera Cruz (*Sumichrast*[6]), valley of Mexico (*le Strange*), Cosamaloapam[3], Cinco Señores[2], and La Parada[5] (*Boucard*); Guatemala, Volcan de Fuego (*O. S.*[8]).

According to Prof. Sumichrast, *Vireo huttoni* is resident in the alpine regions of the State of Vera Cruz in Mexico[6]; and the same is probably the case throughout its Mexican range, and also in Guatemala. As to the latter country nothing positive can be said on this point, as we only know of its existence in that country from a specimen having been obtained by Salvin at Calderas in the Volcan de Fuego at an altitude of about 7300 feet above the sea. This specimen was a male, and was shot on October 10th, 1873[8].

Vireo huttoni was first described by Cassin from specimens obtained near Monterey, in California[1]; and it has since been found in that State in winter up to the 38th parallel; so that everywhere throughout its range this species would appear to be a much more sedentary bird than is usual with members of its family.

Of its nest and eggs Brewer, when compiling his account of the bird[7], was only able to quote a note of Mr. Xantus, who says he found a nest with eggs on May 8th at Fort Tejon, in California; the former was a foot from the ground, loosely put together, and suspended from three stems of weeds under the high trees.

19. **Vireo carmioli.** (Tab. XII. fig. 3.)

Vireo carmioli, Baird, Rev. Am. B. i. p. 356[1]; Lawr. Ann. Lyc. N. Y. ix. p. 97[2]; v. Frantzius, J. f. Orn. 1869, p. 295[3]; Baird, Brew. & Ridgw. N. Am. B. i. p. 383[4].

Supra olivaceus, oculis flavo conspicue conspicillatis, alis et cauda nigricantibus olivaceo limbatis, illis flavido-albo bifasciatis; subtus læte flavus, gula albicantiore; rostro et pedibus plumbeis. Long. tota 4·5, alæ 2·55, caudæ 1·85, rostri a rictu 0·55, tarsi 0·75. (Descr. exempl. ex Volcan de Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica, Dota Mountains (*Carmiol*[1 2]), Volcan de Irazu (*Rogers*); Panama, Volcan de Chiriqui (*Arcé*).

Of this species but little is known. Two specimens obtained by Carmiol in the

highlands of Costa Rica in 1864 formed the basis of Prof. Baird's description[1]; and these same specimens seemed to have been again referred to in Mr. Lawrence's[2] and Dr. von Frantzius's lists[3]. They also furnished the characters in the table given of the members of the genus by Messrs. Baird, Brewer, and Ridgway[4], where the position of the species in the genus is carefully defined. Up to the time of publishing our second list of Veraguan birds* no specimen of *Vireo carmioli* had reached us; but we have since received an example, which is now figured, from the slopes of the Volcano of Chiriqui. We have also two specimens obtained by Rogers on the Volcan de Irazu, in Costa Rica.

b. *Alæ rotundatæ, haud fasciatæ; cauda elongata; rostrum valde robustum, culmine alto.*

20. Vireo hypochryseus.

Vireo hypochryseus, Scl. P. Z. S. 1862, p. 369, t. 46[1]; Baird, Rev. Am. B. i. p. 370[2]; Grayson, Proc. Bost. Soc. N. H. xiv. p. 281[3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 272[4]; Bull. U.S. Nat. Mus. no. 4, p. 18[5].

Supra flavicanti-olivaceus, alis et cauda fuscis, illis dorsi colore limbatis sed haud fasciatis; fronte, superciliis elongatis conspicuis et corpore toto subtus flavis, hypochondriis olivaceo vix tinctis; rostro corneo, pedibus plumbeis. Long. tota 5·4, alæ 2·55, caudæ 2·4, rostri a rictu 0·7, tarsi 0·8. (Descr. exempl. ex inss. Tres Marias, Mexico. Mus. nostr.)

Hab. Mexico[1], Tres Marias Islands (*Grayson*[2 3 4], *Forrer*), Quiotepec in Oaxaca (*Sumichrast*[5]).

A peculiar species, both as to its coloration, its strong bill with sharp culmen, its short wings, and long tail. It was first described and figured by Mr. Sclater from a specimen supplied to him by M. Parzudaki of Paris from some part of Mexico, the precise locality not being recorded[1]. The late Col. A. J. Grayson[4] afterwards discovered it in the Tres Marias Islands, where he says it is quite common, frequenting all parts of the woods, uttering from time to time a cheerful little song[3]. Mr. Forrer also found it during a recent visit to these islands, and sent us a specimen. This *Vireo*, however, is not confined in its range to these remote islands, but also occurs on the mainland, as Prof. Sumichrast met with it in the State of Oaxaca[5], and sent a specimen to the Smithsonian Institution, which, through the kindness of the authorities, we have had an opportunity of examining. This was shot on August 8th, 1868, and Mr. Forrer's on April 18th, 1881.

Note.—Two other species of *Vireo* probably occur in the unexplored parts of North-western Mexico, but, as yet, are only known from Arizona, on the other side of our frontier. These are *V. vicinior* and *V. pusillus*, species both discovered by the energetic ornithologist Dr. Elliott Coues, and both fully described in his work on the Birds of the Colorado Valley.

* P. Z. S. 1870, p. 175 *et seq.*

NEOCHLOE.

Neochloe, Sclater, P. Z. S. 1857, p. 213. (Type *N. brevipennis*, Scl.)

Mr. Sclater proposed this genus for the peculiar South-Mexican species which at present is its sole occupant. The form of the wings and tail are its chief distinguishing characters. The former are very rounded, the second primary being much shorter than the secondaries, and the third primary only about equalling them; the tail is about the same length as the wings, and also rounded. The bill is slender, but hardly more so than in *V. huttoni*; and the feet and legs resemble those of *Vireo*. The coloration is peculiar, and quite different from that of any other member of the allied genera.

1. **Neochloe brevipennis.** (Tab. XIII. fig. 2.)

Neochloe brevipennis, Scl. P. Z. S. 1857, p. 213 [1]; Baird, Rev. Am. B. i. p. 372 [2]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [3].

Cinereus, dorso murino lavato; loris nigris, capite summo, alarum et caudæ marginibus oleagineo-viridibus; campterio alari flavo; mento, abdomine medio et crisso albis; rostro nigricante mandibulæ basi cornea, pedibus nigricanti-plumbeis. Long. tota 4·7, alæ 2·15, caudæ 2·1, rostri a rictu 5·5, tarsi 0·8. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico, Orizaba (*Botteri* [1] [2], *Sumichrast* [3]), Jalapa (*de Oca*).

This seems to be one of the rarest of Mexican birds, as at present we only know of three specimens in collections. The type, which was obtained by Señor Matteo Botteri near Orizaba on the 8th October 1856, is now in the British Museum; another is in the national collection at Washington, and was also received from the same naturalist. The third, which we now figure, is in our own collection, and formed part of a series of bird-skins sent to this country some years ago by Don R. Montes de Oca, the well-known naturalist of Jalapa. Prof. Sumichrast, who worked so long in the State of Vera Cruz, never met with it himself, but includes it in his paper on the birds of that State on Botteri's authority. Nothing whatever is recorded of its habits.

HYLOPHILUS.

Hylophilus, Temminck, Pl. Col. sub tab. 173 (1823). Types *H. thoracicus* and *pœcilotis*.
Pachysylvia, Bonaparte, Consp. Av. i. p. 309 (1850). Type *Sylvicola decurtata*, Bp.

This genus contains about a score of species, all very similar in form, and differing from one another by no very marked characters of colour. They are distributed throughout Tropical America, from Southern Mexico to Brazil, none, however, being found in the West-India Islands, except Trinidad and Tobago. North of the Isthmus of Panama four species occur, all of which are found in the State of Panama itself, two spreading thence to Southern Mexico. Guiana seems to be the metropolis of the genus, where no less than six species have been discovered.

In Central America all the members of the genus belong to the lowland forests, none being found more than 1500 feet above the sea.

The species of *Hylophilus* are shorter and stouter than those of *Vireo*, having short, rounded wings, and a narrow tail of about the same length. The bill is more conical than in *Vireo*, the culmen being but slightly curved towards the tip. The legs are stronger and longer in proportion than those of *Vireo*, and the hind toe longer.

1. Hylophilus decurtatus.

Sylvicola decurtata, Bp. P. Z. S. 1837, p. 118[1].
Pachysylvia decurtata, Bp. Consp. Av. i. p. 309[2].
Hylophilus decurtatus, Baird, Rev. Am. B. i. p. 380[3]; Salv. P. Z. S. 1867, p. 137[4]; 1870, p. 184[5]; Ibis, 1869, p. 313[6]; 1872, p. 314[7]; Scl. & Salv. P. Z. S. 1870, p. 836[8]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 18[9]; Scl. Ibis, 1881, p. 298[10].
Hylophilus cinereiceps, Scl. & Salv. P. Z. S. 1860, p. 299[11]; 1864, p. 348[12]; Ibis, 1860, p. 397[13].
Hylophilus pusillus, Lawr. Ann. Lyc. N. Y. vii. p. 323[14]; viii. p. 179[15]; ix. p. 97[16]; Baird, Rev. Am. B. i. p. 381[17].
Hylophilus plumbiceps, Lawr. Ann. Lyc. N. Y. vii. p. 323[18] (lapsu).
Helmintheros?, Scl. P. Z. S. 1856, p. 291[19].

Flavicanti-olivaceus, pileo toto et capitis lateribus cinereis; oculorum ambitu et corpore subtus albidis, lateribus et crisso flavicanti-olivaceis; rostro corneo, mandibulæ basi flavicante; pedibus obscure corneis. Long. tota 3·7, alæ 2·0, caudæ 1·4, rostri a rictu 0·6, tarsi 0·62. (Descr. feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico[1 3], Cordova (*Sallé*[10 19]), Chimalapa, Tehuantepec (*Sumichrast*[9]); Guatemala (*Velasquez*[1]), Choctum, Vera Paz (*O. S. & F. D. G.*[11 13]); Honduras, San Pedro (*G. M. Whitely*[7]); Nicaragua, Chontales (*Belt*[7]), Hato Viejo (*Baxter*), Greytown (*Holland*[15 17]); Costa Rica, Dota Mountains and Angostura[16 17], Santa Rosa[17] (*Carmiol*), Tucurriqui (*Arcé*); Panama, Bugaba[5], Santa Fé[4], Chitra, Calovevora, and Castillo (*Arcé*), line of railway (*M'Leannan*[11 14]).

This was one of the birds described by Bonaparte in 1837 from a specimen obtained by Col. Velasquez de Leon during his fortnight's tour in Guatemala, in which country we have since found it to be common, but only in the low-lying forest country of Northern Vera Paz, whence our bird-hunters used to obtain us a plentiful supply of specimens, and where we ourselves observed it in February 1862. These were described under the name of *H. cinereiceps*[11], a simple synonym of *H. decurtatus*, as Prof. Baird subsequently pointed out[3]. This *Hylophilus* doubtless also inhabits the forests bordering the Pacific coast, as Mr. Lawrence includes it in his list of Prof. Sumichrast's Tehuantepec collections[9]. Northwards of this we have only one record of its existence, M. Sallé having met with it at Cordova[10 19]; but southwards the above list of localities shows that it is found in all suitable localities as far as the line of the Panama railway. Specimens from the last-named district were named *H. pusillus*

by Mr. Lawrence [14], and its range traced to Costa Rica [16] and Nicaragua [15]; but Prof. Baird, though he allowed *H. pusillus* to stand as a species [17], expressed himself as not satisfied respecting its distinction from *H. decurtatus*; and on several other occasions their identity has been insisted upon [4 10 12].

In habits this species presents nothing peculiar so far as we have observed them. Its constant occupation is the pursuit of insect food amongst the branches and leaves of the forest-trees. Its nest and eggs are unknown.

2. Hylophilus aurantiifrons.

Hylophilus aurantiifrons, Lawr. Ann. Lyc. N. Y. vii. p. 324 [1]; Baird, Rev. Am. B. i. p. 377 [2]; Scl. Ibis, 1881, p. 303 [3].

Hylophilus hypoxanthus, Pelz. Orn. Bras. p. 136 [4]; Scl. & Salv. P. Z. S. 1868, p. 629 [5].

"Supra olivaceus, pileo et nucha brunneis, fronte aurantiaco tincta; subtus pallide flavus, gutture albicantiore; pectore interdum fulvo lavato; subalaribus et crisso flavidis; rostro corylino, pedibus fuscis. Long. tota 4·5, alæ 2·1, hujus rem. prim. 1·2, caudæ 1·8." (*Sclater, l. s. c.* [3])

Hab. Panama, line of railway (*M'Leannan* [1], *Hicks* [2]). — Venezuela [5]; Guiana [3] Amazons Valley [4].

We do not possess any specimens of this bird from the State of Panama, whence Mr. Lawrence's type was derived [1]; but Mr. Sclater [3] having this specimen before him recently found it to resemble so closely Venezuelan examples, which had been correctly referred to *H. hypoxanthus*, Pelz., that he placed the latter name as a synonym of *H. aurantiifrons*. Moreover, from Mr. Sclater's remarks [3], it seems far from improbable that the birds called *H. acuticaudus* and *H. insularis* (the former from Venezuela, and the latter from Trinidad and Tobago), may ultimately be found to be inseparable from *H. aurantiifrons*, in which case the name *H. insularis* should stand for the species, were it not obviously inapplicable to a continental bird. It is, however, necessary that a good series of specimens of these *Hylophili* should be examined to settle their position; for even the Panama bird differs from the Venezuelan in having no tinge of fulvous on the breast, a slight character usually seen in specimens from the latter country.

H. aurantiifrons belongs to Section C of Mr. Sclater's Monograph [3], in which the colour of the head spreads to a greater or less extent over the back.

3. Hylophilus ochraceiceps.

Hylophilus ochraceiceps, Scl. P. Z. S. 1859, p. 375 [1]; Ibis, 1881, p. 306 [2]; Scl. & Salv. Ibis, 1860, p. 397 [3]; Baird, Rev. Am. B. i. p. 376 [4]; Lawr. Ann. Lyc. N. Y. ix. p. 97 [5]; Salv. P. Z. S. 1870, p. 184 [6].

Olivascenti-fuscis, pileo toto rufescenti-ochraceo, alis nigricantibus pallido brunneo extus limbatis; cauda

pallide brunnea; subtus flavicans, gutture grisescenti-albo, pectore et lateribus ochracescenti-fuscis; rostro corneo, pedibus corylinis. Long. tota 4·3, alæ 2·2, caudæ 1·75, rostri a rictu 0·65, tarsi 0·65. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico, Playa Vicente (*Boucard* [1]), Oaxaca?[4]; Guatemala, Choctum [3], Chisec (*O. S. & F. D. G.*); Costa Rica, Angostura (*Carmiol* [4 5]); Panama, Bugaba (*Arcé* [5]).

H. ochraceiceps has a very similar range to that of *H. decurtatus*; but, though probably more common in the eastern parts of Southern Mexico, it has not yet been detected on the isthmus of Tehuantepec, nor, indeed, on the shores of the Pacific anywhere in its range until we reach its extreme limit on the slopes of the Volcan de Chiriqui. It was first discovered by M. Boucard at Playa Vicente in 1859 [1], and in the following year we obtained several examples from the forests of Northern Vera Paz, and in 1862 observed it ourselves in this district, the only one in Guatemala in which we know it to occur. Here it frequents the same woods as *H. decurtatus*, the habits of the two birds being quite similar. The sexes are alike in plumage.

4. **Hylophilus viridiflavus.** (Tab. XIII. fig. 1.)

Hylophilus viridiflavus, Lawr. Ann. Lyc. N. Y. vii. p. 324 [1]; Scl. & Salv. P. Z. S. 1864, p. 348 [2]; Baird, Rev. Am. B. i. p. 380 [3]; Salv. P. Z. S. 1867, p. 137 [4]; 1870, p. 184 [5]; Scl. Ibis, 1881, p. 309 [6].

Supra saturate olivaceus, dorso medio dilutiore; alis nigricantibus, extus dorso concoloribus; cauda fuscescenti-olivacea unicolori; subtus pallide sulphureo-flavus, gula grisescente; subalaribus et remigum marginibus internis ventri concoloribus; rostro pallide corneo; pedibus flavicantibus. Long. tota 4·3, alæ 2·3, caudæ 2·0, rostri a rictu 0·6, tarsi 0·7. (Descr. maris ex Panama. Mus. nostr.)

Hab. Panama, Bugaba [5], Santa Fé [4] (*Arcé*), line of railway (*M'Leannan* [1 2], *Hicks* [3]).

This bird is very closely allied to a Colombian species, *H. flavipes*, Lafr.,—so much so that their distinctness is open to doubt. Mr. Sclater in his recent monograph [6] reluctantly kept them apart, stating at the same time that the only difference he could detect consisted in the paler, more faded hue of the yellow belly of the Colombian bird, a Venezuelan example of *H. flavipes* being still more difficult to distinguish. With no additional materials to throw further light on the question, we follow Mr. Sclater's lead.

H. viridiflavus is easily recognized from the other Central-American species by its yellow legs, which it has in common with *H. flavipes*. The back is wholly olivaceous, also a distinguishing character so far as Central America is concerned.

This *Hylophilus* was discovered in 1861, by M'Leannan and Galbraith, on the line of the Panama railway, the latter remarking that it was rare, only one having been obtained in the jungle [1]. Since then Mr. Hicks also observed it [3], and a few specimens have reached us from our collector Arcé from more western parts of the State of Panama [4 5].

VIREOLANIUS.

Vireolanius, Bonaparte, Consp. Av. i. p. 330 (1850) (ex Du Bus); Baird, Rev. Am. B. i. p. 395.

This genus, with the next, form a distinct section of the Vireonidæ, by reason of their stout beaks and their more robust build. They approach the Shrikes (Laniidæ); and, indeed, we think it not at all improbable that their more immediate relationship with the African genus *Laniarius*, which they strongly resemble in many points of coloration, will some day have to be reconsidered; but to do so here would lead us into a discussion far beyond the limits of the present work. We may remark, however, that Swainson placed the species he described in the genus *Malaconotus*, calling it *M. leucotis*, and in the same genus he placed several species now considered to belong to *Laniarius*.

From *Cyclorhis Vireolanius* is hardly to be distinguished structurally; but, as Prof. Baird remarks, the beak is not quite so strongly curved and not so deep at the base.

Cyclorhis, however, is very homogeneous as now restricted, and to include *Vireolanius* in it would be to introduce an aberrant element. Moreover we feel sure that the alliance is not so close as appears at first sight, though the differences are not to be satisfactorily stated at present.

Vireolanius contains four species, one of which, *V. melitophrys*, is restricted to the highlands of Mexico and Guatemala. *V. pulchellus*, *V. eximius*, and *V. leucotis* are probably all lowland species, and are distributed, the first throughout Central America, the second in Colombia, and the last in Guiana and Upper Amazonia.

a. *Subtus albus torque pectorali castaneo.*

1. Vireolanius melitophrys.

Vireolanius melitophrys, DuBus, Esq. Orn. t. 26 [1]; Bp. Consp. Av. i. p. 330 [2]; Scl. P. *Z.* S. 1857, p. 213 [3]; 1859, p. 363 [4]; 1862, p. 19 [5]; Scl. & Salv. Ibis, 1860, p. 31 [6]; Ex. Orn. p. 13, t. 7 [7]; Baird, Rev. Am. B. i. p. 396 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548 [9].

Lanius chrysophrys, Licht. Mus. Berol.[10] (fide Bonaparte [2]).

Supra olivaceus, capite summo et cervice postica plumbeis, superciliis læte flavis, stria per oculos a rictu ad nucham extensa, altera angusta rictali nigris; subtus albus, pectore læte castaneo, hypochondriis eodem colore lavatis; iride (ave viva) viridescente albo, pedibus carneis. Long. tota 6·0, alæ 3·0, caudæ 2·6, rostri a rictu 0·9, tarsi 0·95. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

♀ capite summo ochraceo tincto, striis capitis lateralibus fusco-nigris, subtus pectore castaneo dilutiore, abdomine toto ochraceo lavato a mare differt. (Descr. feminæ ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Mexico [1 2 10], Orizaba (*Botteri* [3]), Jalapa (*de Oca* [4]), Capulalpam (*Boucard* [5]), temperate region of Vera Cruz (*Sumichrast* [9]), valley of Mexico (*le Strange*); Guatemala [6], Volcan de Fuego (*O. S. & F. D. G.*[7 8]).

This species, which has no near ally in the genus *Vireolanius*, is restricted in its range to the highlands of Mexico and Guatemala. In the former country it has been

met with by several travellers; and Prof. Sumichrast tells us [9] that it is found in the upper extremity of the temperate region at an elevation of about 5000 feet above the sea. He further supposes that *V. pulchellus*, a bird he never met with himself, has a similar range; but in this he is doubtless in error, as will be seen in the account of that species. In Guatemala we only found it in the oak-forests of the Volcan de Fuego at an elevation of about 6000 to 7000 feet. Here it is by no means common, specimens only now and then being brought in by our Indian hunters. From this source we obtained the female described above, which shows that there exists a slight sexual difference in the plumage in this species.

Vireolanius melitophrys probably was first represented in the Berlin Museum under Lichtenstein's MS. name *Lanius chrysophrys* [10]; but no description of it was published till 1850, when Bonaparte gave its diagnosis [2], adopting the name proposed for it by the late Vicomte Du Bus, who had a plate drawn of it from a specimen in the Brussels Museum, which was to be the 26th plate of his unfinished 'Esquisses Ornithologiques' [1].

b. *Subtus viridis, gula flava.*

2. Vireolanius pulchellus.

Vireolanius pulchellus, Scl. & Salv. Ibis, 1859, p. 12 [1]; Ex. Orn. p. 15, t. 8 [2]; Salv. Ibis, 1861, p. 147 [3]; 1872, p. 314 [4]; P. Z. S. 1870, p. 184 [5]; Lawr. Ann. Lyc. N. H. vii. p. 468 [6], ix. p. 97 [7]; Baird, Rev. Am. B. i. p. 397 [8].

Læte psittaceo-viridis, abdomine flavescentiore, pileo cyaneo, gutture flavo; rostro plumbeo, tomiis albicantibus; pedibus plumbeis. Long. tota 5·5, alæ 2·9, caudæ 1·9, rostri a rictu 0·8, tarsi 0·85. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

Femina mari similis coloribus forsan obscurioribus et stria infra oculos flavescente distinguenda. (Descr. femina ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico, Mirador (*Sartorius* [8]); Guatemala (*Skinner* [1]), Choctum [8], mountains of Rasché [2], Savana Grande, and Volcan de Agua above San Diego (*O. S. & F. D. G.*); Nicaragua, Chontales (*Belt* [4]); Costa Rica, Angostura (*Carmiol* [7 8]), Orosi (*Carmiol*); Panama, Calovevora [5] and Calobre (*Arcé*), line of railway (*M'Leannan* [2 6]).

As will be seen above, *Vireolanius pulchellus* has a wide range throughout our region, being doubtless found wherever the warmer tropical forests extend. In such situations in Guatemala all our specimens were obtained, the bird being very common in the neighbourhood of the Indian rancheria of Choctum. The specimen from the mountains of Rasché was obtained at an elevation of about 2000 to 3000 feet; and this height is probably the extreme limit of the range of the species in altitude, whence it descends to the sea-level in Nicaragua and Panama.

When the article on this species was published in 'Exotic Ornithology,' it was stated that the range of *V. pulchellus* in Guatemala was restricted to the eastern forests; we have since discovered it in the forest-clad slopes which extend to the

shores of the Pacific Ocean. Doubts were also expressed as to the origin of the specimens from the Isthmus of Panama; but the range of the species having been proved throughout Central America into the State of Panama, we now think that these doubts were perhaps hardly justified.

The first description of *V. pulchellus* was based upon a specimen in the British Museum, sent there by the late George Ure Skinner from Guatemala.

Vireolanius pulchellus has two allies in the continent of South America. *V. eximius* is its representative in Colombia, probably in the forests of the valley of the Magdalena. *V. leucotis* takes its place in Guiana and throughout the forests of the great basin of the Upper Amazons. Concerning this last species some misapprehension has long prevailed; but we believe that the materials received by us from Ecuador and Guiana have placed the species on a proper footing, and that one bird, and not two, is found over this wide area *.

CYCLORHIS.

Cyclorhis, Swainson, Zool. Journ. iii. p. 162 (1828) (type *Tanagra guianensis*, Gm.); Baird, Rev. Am. B. i. p. 384.

Cyclorhis has a stouter bill than any other genus of Vireonidæ, *Vireolanius* alone approaching it in this respect; the legs too are stout and the claws strong. The first primary is well developed, being about equal to half the second.

We are now acquainted with eleven species of *Cyclorhis*, all of which have a great general resemblance to one another in colour. They may be divided into two groups by the colour of the head. The typical section, to which both the Central-American species belong, have the top of the head and nape grey, with an ochraceous tinge. Some eight species compose this group, which belongs to the northern and eastern portions of South America. The second section, of which *C. virenticeps* is a representative, consists of three species which have the vertex and nape green, like the back. These are found in western parts of South America, Colombia, Ecuador, and Peru.

1. Cyclorhis flaviventris.

Cyclaris flaviventris, Lafr. Rev. Zool. 1842, p. 133 [1]; Bp. Consp. Av. i. p. 330 [2].

Cyclorhis flaviventris, Scl. P. Z. S. 1856, p. 299 [3]; 1859, p. 363 [4]; 1864, p. 173 [5]; Scl. & Salv. Ibis, 1859, p. 13 [6]; Baird, Rev. Am. B. i. p. 386 [7]; Lawr. Ann. Lyc. N. Y. ix. p. 200 [8]; Bull. U. S. Nat. Mus. no. 4, p. 18 [9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548 [10]; Salv. Cat. Strickl. Coll. p. 114 [11].

Cyclorhis amaurophrys, Licht. Nomencl. Av. p. 11 [12] (fide Bonaparte, ut supra [2]).

Supra olivacea, pileo summo et genis plumbeis, his pallidioribus, superciliis ochraceo rufescentibus; subtus omnino flava, hypochondriis olivaceo indutis; rostro et pedibus carneis, mandibulæ basi nigricante. Long.

---

* *Cf.* Salv. Ibis, 1878, p. 443; Salv. & Godm. Ibis, 1882, pp. 77, 78.

tota 6·2, alæ 3·1, caudæ 2·5, rostri a rictu 0·9, tarsi 0·9. (Descr. maris ex Coban, Guatemala. Mus. nostr.)

Femina mari similis, capite summo forsan magis ochraceo tincto.

Hab. Mexico (*Sallé* [3]), Santa Cruz (*Lafresnaye* [1]), valley of Mexico (*White* [5]), temperate region of Vera Cruz (*Sumichrast* [10]), Mirador (*Sartorius* [7]), Jalapa [2] (*de Oca* [4], *Höge*), Guichicovi, Petapa (*Sumichrast* [9]), Merida in Yucatan (*Salazar* [7], *Schott* [8]), Northern Yucatan (*Gaumer*); Guatemala [3] (*Constancia* [6 11]), Volcan de Fuego, 7300 feet, Volcan de Agua above San Diego, Tactic, Coban, Choctum (*O. S. & F. D. G.*),

This, the most northern representative of the genus *Cyclorhis*, is a common species in Southern Mexico and Guatemala, where it enjoys a considerable range in altitude, being found in Mexico abundantly throughout the temperate region as high as 4300 feet; so Prof. Sumichrast tells us [10]. In Yucatan it is found almost at the sea-level. In Guatemala its range in altitude is still greater; for it occurred to us in the Volcan de Fuego at Calderas, an elevation of 7300 feet; and it is equally common in the low-lands of Vera Paz, which are not more than 1200 feet above the sea.

Its usual resort is the outskirts of the forest or second-growth woods.

In Costa Rica and Panama its place is taken by the next species.

C. flaviventris was first described by Lafresnaye from Mexican specimens in his own collection. This is the only name that has been applied to it, excepting Lichtenstein's undefined title *Cyclorhis amaurophrys* [12], which Bonaparte says refers to the same species [2].

Judging from specimens the sex of which has been accurately determined, it would appear that the crown of the head in the male is purer slate-colour than in the female, which has this part tinged with ochreous. Prof. Baird has drawn attention [7] to the variation in the black spot at the base of the mandible in this species. We also find some differences. Mexican and Yucatan specimens all have this spot very distinctly marked. In those from Coban and Tactic it is also plainly shown, but not so in our examples from Choctum and Southern Guatemala. This feature seems here to be of less importance than in the case of some of the allied South-American species.

2. Cyclorhis flavipectus.

Cyclorhis flavipectus, Scl. P. Z. S. 1858, p. 448 [1]; Baird, Rev. Am. B. i. p. 389 [2]; Scl. & Salv. Nomencl. Av. Neotr. p. 13 [3].

Cyclorhis subflavescens, Cab. J. f. Orn. 1860, p. 405 [4]; 1861, p. 93 [5]; Baird, Rev. Am. B. i. p. 388 [6]; Lawr. Ann. Lyc. N. Y. ix. p. 97 [7]; Salv. Ibis, 1869, p. 313 [8]; P. Z. S. 1870, p. 184 [9]; v. Frantz. J. f. Orn. 1869, p. 295 [10].

Cyclorhis flaviventris, Lawr. Ann. Lyc. N. Y. ix. p. 97 [11].

C. flaviventri similis, sed ventre postico et crisso albis nec flavis distinguenda.

Hab. Costa Rica (*v. Frantzius* [4]), Barranca [6], Dota Mountains [6 7] (*Carmiol*), San José (*v. Frantzius* [6 7]), Tucurriqui, Bebedero, Nicoya (*Arcé*), Irazu (*Rogers*); Panama, Volcan de Chirqui (*Arcé* [9]).—Colombia [1 2]; Venezuela [1 3]; Trinidad [1 2]; Amazonia [3].

Some confusion exists regarding this bird, owing to its being subject to some variation in Costa Rica, two (and even three) species having been stated to be found in that country. The amount of yellow on the belly varies considerably in different individuals; those in which the white of the underparts is most restricted have been called *C. flaviventris*, and considered the same as the Mexican bird. Those with more white beneath are *C. subflavescens*, whilst those in which the white extends to the chest have been considered inseparable from *C. flavipectus*, the species of Colombia, Venezuela, &c. Finding all these forms in Costa Rica, we do not see how any separation can be made; we therefore call them by Mr. Sclater's name, it being the oldest. The differences of size and colour alluded to by Prof. Cabanis in his original description, and commented upon by Prof. Baird, we do not see confirmed in the series before us. It must be noted, however, that the true *C. flaviventris* does not occur in Costa Rica, as all specimens from that country have the lower belly white.

C. flavipectus, though not uncommon in Costa Rica, does not appear to be found in the State of Panama, except in the neighbourhood of Chiriqui. Absent from the isthmus itself, it reappears at Santa Marta and near Bogota, in Colombia, and again in Venezuela and Trinidad, whence Mr. Sclater's types of the species were obtained[1].

Fam. LANIIDÆ*.

LANIUS.

Lanius, Linnæus, Syst. Nat. i. p. 134 (1766).

The genus *Lanius* is far more strongly developed in the Old World than in the New, where only two well defined species occur in the Nearctic Region, one of them extending its range over the whole of Mexico. In the Old World the range of *Lanius* and its close allies includes the Palæarctic, Indian, and Ethiopian Regions, the Australian alone being outside its limits.

The strong raptorial bill of *Lanius* distinguishes it from most of the Passerine birds. This is used for the capture and destruction of small birds and the larger kinds of insects, and is strongly notched near the curved and pointed end of the mandible. The feet, though strong, are like those of ordinary Passeres; the tarsus is longer than the middle toe, the lateral toes being nearly equal.

1. Lanius ludovicianus.

Lanius ludovicianus, Linn. Syst. Nat. i. p. 134[1]; Bp. P. Z. S. 1837, p. 112[2].
Collyrio ludovicianus, Dresser, Ibis, 1865, p. 480[3].
Collurio ludovicianus, Baird, Rev. Am. B. i. p. 443[4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 418[5].
Lanius excubitorides, Sw. Faun. Bor.-Am. ii. p. 115, t. 34[6]; Scl. P. Z. S. 1864, p. 173[7].

* See *anteà*, p. 185.

Collyrio excubitorides, Baird, U.S. Bound. Surv. ii. Birds, p. 11[8].
Collurio excubitorides, Baird, Rev. Am. B. i. p. 445[9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548[10].
Collurio ludovicianus, var. *excubitorides*, Baird, Brew. & Ridgw. N. Am. B. i. p. 421[11]; Lawr. Bull. Nat. Mus. no. 4, p. 18[12]; Mem. Bost. Soc. N. H. ii. p. 272[13].
Lanius ludovicianus excubitorides, Coues, B. Col. Vall. i. p. 561[14].
Lanius carolinensis, Wils. Am. Orn. iii. p. 57, t. 22. f. 5[15]; Sw. Phil. Mag. new ser. i. p. 368[16]; Licht. Preis-Verz. mex. Vög. p. 2, cf. J. f. Orn. 1863, p. 58[17].
Lanius mexicanus, Brehm, J. f. Orn. 1854, pp. 145, 148[18]; Scl. P. Z. S. 1859, p. 375[19]; Dugès, La Nat. i. p. 141[20].

Supra ardesiaco-cinereus, uropygio paulo pallidiore; capitis lateribus, alis et cauda nigris; scapularibus griseo-albis; secundariorum apicibus, speculo alari, subalaribus, rectricibus quatuor gradatim lateralibus et corpore subtus omnino albis; rostro et pedibus nigris. Long. tota 8·0, alæ 4·0, caudæ rectr. med. 4·2, rectr. lat. 3·4, rostri a rictu 0·9, tarsi 1·0. (Descr. exempl. ex valley of Mexico. Mus. nostr.)

Exempl. altera, supra grisescentior, uropygio fere albo, loris nigris supra albo indistincte limbatis. (=*L. excubitorides*, Sw., mas, ex Oaxaca, Mexico. Mus. nostr.)

Hab. North America, Southern Atlantic and Gulf States[5] and Mississippi valley &c.[14], Western United States and northwards to Saskatchewan[6] and Canada[14], Texas[3], Mexican frontier[8].—Mexico[2 17 18], Charco Escondido (*Couch*[9]), Mazatlan (*Grayson*[13], *Forrer*), Presidio (*Forrer*), Colima (*Xantus*[9 13]), Guanajuato (*Dugès*[20]), valley of Mexico (*White*[7]), Tierra fria (*le Strange*), tableland (*Bullock*[16]), plateau, and temperate region of Vera Cruz (*Sumichrast*[10]), Mirador (*Sartorius*[9]), Oaxaca[9] (*Boucard*[19]), Tehuantepec city (*Sumichrast*[12]).

For some time it was the practice of ornithologists to consider the Shrikes of the south Atlantic States and those of Western and North-western America to be separate species—the former bearing Linnæus's name *L. ludovicianus*[1], the latter that proposed by Swainson for a bird from the plains of the Saskatchewan, *L. excubitorides*. But Dr. Coues, in his 'Birds of the Colorado Valley,' says that he has gradually become satisfied that no distinct line can be drawn between these two birds, and that the two alleged species grade into one another by insensible degrees[14]. Other authors hold to these views, which we believe, so far as we can see with much more limited materials at our disposal for forming an opinion, to be accurately true. We therefore consider *L. ludovicianus* a variable species, with a tendency to become a dark race in the South-eastern States and a lighter one in the West and North-west. In Mexico both races occur; whether as residents or migrants we are unable to say. One of our specimens from the valley of Mexico seems to be in every way a typical *L. ludovicianus*. Our other Mexican specimens are more of the *L. excubitorides* type, but are not very constant in the tint of the grey of the upper surface or in the purity of the white of the rump.

Though *L. ludovicianus* appears to be found throughout Mexico, it does not pass beyond the limits of that country. It seems to be more common on the tablelands of the interior; but near Mazatlan and Tehuantepec it approaches the coast, but perhaps only in the winter season; for Grayson found Shrikes in the former district from October

to April, and suggested that they migrated to the high central plains in summer [13]. Prof. Sumichrast speaks of this *Lanius* as probably resident in the plateau of Mexico; and in the State of Vera Cruz, he says, it is seldom found at a lower elevation than 3000 or 2600 feet. He adds that he did not remember ever to have met with a single specimen in the hot region [10]; but this was written before he found it near Tehuantepec city [12].

There are no records of *L. ludovicianus* nesting in Mexico; but its breeding-habits in North America are well known. On this point, and on the habits of American Shrikes generally, as well as on the synonymy of the species, Dr. Coues has written an elaborate account, which we recommend to our readers as well worthy of their study [14].

Fam. AMPELIDÆ *.

AMPELIS.

Ampelis, Linnæus, Syst. Nat. i. p. 297 (type *A. garrula*, L.); Baird, Rev. Am. B. i. p. 403.

The long wings, the first primary being almost obsolete, and the second nearly the longest in the wing, the short tail, and the short prorect supernasal feathers, as well as the peculiar wax-like elongation of the rhachis of several of the secondary quills, and the silky plumage, serve to distinguish *Ampelis* from the genera which follow.

Ampelis cedrorum, the species which here concerns us, is peculiar to the Nearctic Region, and only visits our country in winter. It has two strictly congeneric allies, one of which, *A. garrula*, is also found in the Nearctic Region, but is equally if not better known as an inhabitant of the Northern Palæarctic Region, and as an occasional winter visitant to the British Islands. The third species, *A. phœnicoptera*, is peculiar to Japan.

1. Ampelis cedrorum.

Bombycilla cedrorum, Vieill. Ois. Am. Sept. i. p. 88, t. 57 [1]; Gundl. Orn. Cub. p. 80 [2].

Ampelis cedrorum, Scl. P. Z. S. 1856, p. 299 [3]; 1858, p. 302 [4]; 1859, p. 363 [5]; 1864, p. 173 [6]; Baird, U.S. Bound. Surv. ii. Birds, p. 11 [7]; Rev. Am. B. i. p. 407 [8]; Scl. & Salv. Ibis, 1859, p. 13 [9]; Taylor, Ibis, 1860, p. 111 [10]; Dresser, Ibis, 1865, p. 480 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548 [12]; Dugès, La Nat. i. p. 141 [13]; Baird, Brew. & Ridgw. N. Am. B. i. p. 401 [14]; Lawr. Bull. U.S. Nat. Mus. no. 4. p. 18 [15]; Coues, B. Col. Vall. i. p. 470 [16].

Ampelis americana, Wils. Am. Orn. i. p. 107, t. 7. f. 1 [17].

Bombycilla americana, Licht. Preis-Verz. mex. Vög. p. 1, cf. J. f. Orn. 1863, p. 56 [18]; Jones, Nat. in Berm. p. 29 [19].

Bombycilla carolinensis, Briss. Orn. ii. p. 337 [20].

Ampelis carolinensis, Gosse, B. Jam. p. 197 [21].

* The Central-American species of this family belong to Prof. Baird's group B, containing his subfamilies Ampelinæ and Ptilogonatinæ, the former comprising the genus *Ampelis*, the latter *Ptilogonys* and *Phainopepla*, to which we add *Phainoptila*, an aberrant form.

Sericeo-cinnamomeo-fusca, dorso paulo fuscescentiore, uropygio clare cinereo, alis et cauda purpurascenti-nigris, illarum secundariis quinque aut sex rhachibus ad apices coccineo terminatis, hac flavo terminata, crista elongata dorso concolori, fronte cum stria utrinque per oculos conjunctis nigris; subtus mento nigricante, abdomine flavido, crisso albo, rostro et pedibus nigris. Long. tota 6·7, alæ 5·7, caudæ 2·4, rostri a rictu 0·7, tarsi 0·7. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

Femina mari similis, secundariorum apicibus coccineis aut paucioribus aut absentibus.

Hab. North America generally to between 50° and 60° N. lat. [16], Texas [11], Bermuda [19].—Mexico [18], Tamaulipas and Nuevo Leon (*Couch* [7]), Guanajuato (*Dugès* [13]), valley of Mexico (*White* [6], *le Strange*), State of Vera Cruz (*Sumichrast* [12]), Jalapa (*de Oca* [5]), Cordova (*Sallé* [3]), La Parada (*Boucard* [4]), Oaxaca (*Fenochio*), Tehuantepec (*Sumichrast* [15]); Guatemala (*Skinner* [9]), ridge above Mixco, San Juan Sacatepeques, Dueñas, Savana Grande, Escuintla, San Gerónimo, Tactic, Coban, Cahabon, Choctum [8], Dolores near Peten (*O. S. & F. D. G.*); Honduras, Siquatepeque (*G. C. Taylor* [10]).—Cuba [2]; Jamaica [21].

The Cedar-bird is a common winter visitant to Mexico and Guatemala, though somewhat irregular in its movements, doubtless owing to the state of the seasons in North America, its summer quarters. Though usually commoner in the highlands, it is found at comparatively low elevations, both in Mexico and Guatemala. Prof. Sumichrast has given Tehuantepec as one of the localities in the former country where it occurs; and in the latter we observed it both at Escuintla, about 1500 feet above the sea, and in the pine-ridge of Dolores, in the department of Peten, which is at a still lower elevation. In the hills round the city of Guatemala it is to be seen in some abundance from autumn to spring, flying in flocks or perched on some fruit-bearing tree. In the neighbourhood of Coban it is also a common bird. Mr. Taylor's is the only record of the occurrence of *A. cedrorum* beyond the limits of Guatemala, he having found it near Siquatepeque, in the Republic of Honduras [10]. Dr. Coues, indeed, credits Dr. Hartlaub for the statement of its occurrence at Guayaquil; but the reference under which this statement is said to be made only mentions Cuba as one of the places to which the Cedar-bird strays; so that its appearance in South America has yet to be recorded, notwithstanding the observation of Brewer, for which he gives no authority, that the bird is abundant in the northern parts of South America and also throughout Central America. As regards the Antilles, *A. cedrorum* can only be said to appear at rare intervals in Jamaica and Cuba; Mr. Gosse quotes Hill's authority for its occurrence in Jamaica, a flock having been observed near Spanish Town in 1836. In Cuba also it is quite a rare straggler; but when it does visit that island it appears in flocks and not as single birds. Its line of migration would seem therefore, as a rule, to follow the land to the westward, and not to cross any wide expanse of sea; but it has occurred several times in Bermuda [19].

In the United States and in Canada *Ampelis cedrorum* is a very familiar bird; and a full account of its habits is given in the 'History of North-American Birds.' In its

migrations it is uncertain, often remaining throughout the year in places where the winter happens to be mild. It is a late breeder, unhatched eggs having been found as late as October. Owing to the depredations they make on the fruit-trees, great numbers of these birds are yearly destroyed. But fruit is not their only food; for they also consume quantities of insects, especially their larvæ, in the spring and early summer. The nest is usually placed in a low bush or a tree, not more than twenty feet from the ground, and is composed of a strong framework of twigs, coarse vegetable stems, and grasses; inside this is a compact structure of grasses, fibres of vine-stems, &c., and a lining of leaves and fine rootlets. The eggs, five or six in number, have a ground-colour either slaty or stone, and are blotched with several shades of purple-brown [14].

PTILOGONYS.

Ptiliogonys, Swainson, Phil. Mag. new ser. i. p. 368 (1827).
Ptiliogonatus, Sw. Zool. Journ. iii. p. 164.
Ptilogonys, Bp. Consp. i. p. 335; Baird, Rev. Am. B. i. p. 410.

The wing, though pointed in this genus, has the secondary quills much longer in proportion to the primaries than in *Ampelis*; the first primary is well developed; the second and third, falling considerably short of the point of the wing, are acute, the third being slightly curved outwardly towards the tip; the fifth is the longest, the fourth and sixth being nearly equal; the tail is long, nearly square at the end in *P. cinereus*, cuneate, with the central feathers much elongated, in *P. caudatus*; the bill is short, the gape wide, the rictal bristles being moderately developed; the nostrils are oval, the frontal feathers nearly reaching to the proximal edge of the nasal opening. The plumage, though soft, is rather more open in texture than in *Ampelis*.

Of *Ptilogonys*, as now restricted, only two species are known—one inhabiting the highlands of Mexico and Guatemala, the other the mountainous districts of Costa Rica. The genus has no nearer ally than *Phainopepla* in North America; and in South America nothing approaches it even remotely.

1. Ptilogonys cinereus.

Ptiliogonys cinereus, Sw. Phil. Mag. new ser. i. p. 368[1]; Zool. Ill. new ser. ii. t. 62[2]; iii. t. 102[3].
Ptilogonys cinereus, Bp. Consp. i. p. 335[4]; Scl. P. Z. S. 1856, p. 299[5]; 1858, p. 302[6]; 1859, 363[7]; 1864, p. 173[8]; Scl. & Salv. Ibis, 1859, p. 13[9]; 1860, p. 31[10]; Baird, Rev. Am. B. i. p. 412[11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548[12]; Dugès, La Nat. i. p. 141[13]; Lawr. Mem. Bost. Soc. N. H. ii. p. 273[14]; Salv. Cat. Strickl. Coll. p. 147[15].
Ptiliogonatus cinereus, Sw. Zool. Journ. iii. p. 164[16].
Hypothymis chrysorrhoa, Temm. Pl. Col. 452[17].
Hypothymis mexicanus, Licht. Preis-Verz. mex. Vög. p. 2, cf. J. f. Orn. 1863, p. 58[18].

Cinereus, capite summo dilutiore, fronte, oculorum ambitu et mento albis; regione parotica et cervice postica griseo-fuscis; alis et cauda quadrata sericeo-cyaneo, nigris, hujus rectricibus quatuor utrinque lateralibus plaga quadrata magna alba notatis, hypochondriis olivaceo-flavis, abdomine imo et tibiis albis, crisso luteo;

rostro et pedibus nigris. Long. tota 8·0, alæ 3·75, caudæ 4·15, rostri a rictu 0·7, tarsi 0·65. (Descr. maris ex Parada, Mexico. Mus. nostr.)

Femina fuscescens, subtus dilutior, fronte, mento et oculorum ambitu albis, abdomine imo et macula caudali sicut in mare albis, crisso luteo. (Descr. feminæ ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mexico [4 5] (*Deppe* [17], *J. Mann* [15]), Tablelands (*Bullock* [1]), Real del Monte (*J. Taylor* [3]), Guanajuato (*Dugès* [13]), Sierra Madre, near Colima (*Xantus* [11 14]), valley of Mexico (*White* [8], *le Strange*), Cordova [11], Orizaba (*Botteri* [11]), Alpine region of Vera Cruz and valley of Orizaba (*Sumichrast* [12]), Jalapa (*de Oca* [7]), La Parada (*Boucard* [6]), Oaxaca (*Fenochio*); Guatemala (*Constancia* [9 15]), Volcan de Fuego (*O. S.* [10]), Dueñas (*O. S. & F. D. G.* [11]), Volcan de Agua, Sumpango (*O. S. & F. D. G.*), Barranco Hondo and ridge above Totonicapam (*O. S.*).

This pretty species was first sent to Europe by Bullock, and was included, so Swainson tells us [2], in the list of the species characterized by him in 'An Appendix to the Catalogue of Bullock's Mexican Museum,' published in 1824. We have seen a copy of this catalogue, but not the appendix. The first formal publication of the species was probably that in Swainson's paper in the 'Philosophical Magazine' [1], which was written after, but published before, the article in the 'Zoological Journal' [16]. Soon after this it was described and figured by Temminck, in the 'Planches Coloriées,' under the title *Hypothymis chrysorrhoa* [17]; and about the same time Deppe obtained the specimens now in the Berlin Museum [18]. Since then *P. cinereus* has been observed by most collectors who have visited the highlands of Mexico, its northernmost recorded localities being Guanajuato and the Sierra Madre, near Colima. In the State of Vera Cruz Prof. Sumichrast says that, though it is found as low as 4000 feet in the valley of Orizaba, it is by rights a bird of the alpine region, where it ascends to a height of nearly 10,000 feet. In Guatemala we found it in the tablelands of the interior, but only the main cordillera and on the high volcanoes which stretch towards the Pacific *. Here it occurs from an elevation of 10,500 feet in the mountain-ridges above Totonicapam, in the Altos of Guatemala, down to an elevation of nearly 4000 feet between the volcanoes of Agua and Fuego. In the last-named mountain we used often to observe it frequenting oak trees in the outskirts of an opening of the forest, where it would fly after and seize insects in the air, and where also it doubtless feeds on the berries of the different species of mistletoe which abound in such localities, as well as other fruits.

There is a slight difference between Mexican and Guatemalan specimens of *P. cinereus* to be noticed in the plumage of adult male birds. The latter have rather less white on the chin; the cinereous colour of the under surface is rather darker; the flanks are rather richer olive-colour; and there is, perhaps, a little less white on the lower belly. These differences are worthy of note, but they are hardly sufficient for specific distinction.

Nothing is recorded of the breeding-habits of this species; but we have a bird in

* The locality "Coban," given by Salvin [10], on the authority of V. Constancia, we now believe to be erroneous, though the bird might well be found in the higher mountains of Vera Paz.

first plumage shot on 6th July in the Volcan de Fuego, and so young that it had doubtless been reared in the vicinity. In this bird there is no trace of a spotted first plumage which is like that of the female; the belly is yellowish and the same colour as the crissum, the wings and tail being coloured like those of the adult bird.

Accounts differ as to the colour of the iris of this species in the living bird. Xantus gives it as carmine [11]; Don A. Fenochio as "very dark." Unfortunately we omitted to note the colour ourselves.

2. Ptilogonys caudatus.

Ptilogonys caudatus, Cab. J. f. Orn. 1860, p. 402 [1]; Lawr. Ann. Lyc. N. Y. ix. p. 97 [2]; Baird, Rev. Am. B. i. p. 413 [3]; Scl. & Salv. Ex. Orn. p. 11, t. 6 [4]; v. Frantz. J. f. Orn. 1869, p. 295 [5]; Salv. P. Z. S. 1870, p. 185 [6].

Cinereus, collo undique cum crista et gula flavicantibus, oculorum ambitu aureo, pileo summo cinereo; alis nitenti-nigris, tectricibus extus cinerascentibus; caudæ rectricibus lateralibus graduatis, harum intermediis elongatis, omnibus nitenti-nigris, quatuor utrinque externis macula alba in pogonio interiore donatis; hypochondriis olivascenti-flavis, crisso aureo; rostro et pedibus nigris. Long. tota 9·0, alæ 3·8, caudæ rectr. ext. 3·6, rectr. med. 5·2.

Femina olivascenti-cinerea fere unicolor, flavido mixta; pileo summo pure cinereo; annulo oculari aureo; alis caudaque sicut in mare sed obscurioribus, cauda minus elongata. (Descr. maris et feminæ ex Volcan de Cartago, Costa Rica. Mus. nostr.)

Hab. Costa Rica, Irazu (*v. Frantzius* [1 5], *J. Cooper* [2]), San José (*v. Frantzius* [3], *Rogers*), Rancho Redondo (*Carmiol* [2 3]); Panama, Volcan de Chiriqui (*Arcé* [6]).

This beautiful species takes the place of *Ptilogonys cinereus* in the highlands of Costa Rica and the adjoining parts of the State of Panama. In its general coloration and in the texture of its plumage it is very similar to its congener; but, besides differing in details of colour, it has a cuneate tail, the central rectrices being much elongated. Upon the strength of this difference, Prof. Baird went so far as to suggest a subgeneric name *Sphenotelus* for *P. caudatus*; but this we think hardly necessary.

Ptilogonys ~~cinereus~~ was one of Dr. von Frantzius's discoveries, made in the month of March in the mountains of Costa Rica, at an elevation of 8000 feet, near the summit of the Volcan de Irazu [5]; and his specimens, on being sent to Berlin, were described by Prof. Cabanis in his series of papers published on the birds of that country [1]. It has since been sent in some numbers from Costa Rica, where it is probably not uncommon. We have also received it from the Volcan de Chiriqui, in the State of Panama, our excellent collector Arcé having met with it in that district [6]. Being a strictly mountain bird, probably never descending below an elevation of 5000 or 6000 feet, it is not found elsewhere in the State of Panama.

caudatus
see corrigenda

PHAINOPEPLA.

Phainopepla, Sclater, P. Z. S. 1858, p. 543 (type *Ptilogonys nitens*, Sw.); Baird, Rev. Am. B. i. p. 415.

The glossy black plumage and long occipital crest are obvious distinguishing

characters of this species, besides which the bill is more feeble and less depressed than in *Ptilogonys*, the rictal bristles being much longer. The wings have a large, broad spurious primary, the second and third being broad and rounded at their tips, the fifth the longest in the wing, slightly exceeding the fourth and sixth. The frontal feathers, though not covering the nostrils, have a few long bristles which reach over three fourths the length of the culmen. The tail is long and slightly rounded; the tarsi short as in *Ptilogonys* and *Ampelis*.

This is a monotypic genus, its sole member, *Phainopepla nitens*, having a rather wide range from the northern confines of Southern Mexico to the south-western and south-middle States of the Union.

1. Phainopepla nitens.

Ptilogonys nitens, Sw. An. in Menag. p. 285[1]; Bp. Consp. i. p. 335[2]; Cass. Ill. B. Cal. & Tex. p. 169, t. 29[3].

Phainopepla nitens, Scl. P. Z. S. 1858, p. 543[4]; 1864, p. 173[5]; Baird, U.S. Bound. Surv. ii., Birds, p. 11[6]; Dresser, Ibis, 1865, p. 480[7]; Dugès, La Nat. i. p. 141[8].

Phænopepla nitens, Baird, Rev. Am. B. i. p. 416[9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548[10]; Baird, Brew. & Ridgw. N. Am. B. i. p. 405[11]; Coues, B. Col. Vall. i. p. 475[12].

Lepturus galeatus, Less. (1838) fide Bonaparte[13].

Ptilogonys aterrima, Licht. Mus. Ber.[14]

Nitens chalybeo-nigra unicolor, alarum remigibus pogonio interno medialiter albis, crista elongata corpore concolori. Long. tota 8·0, alæ 4·0, caudæ 4·2, rostri a rictu 0·7, tarsi 0·7. (Descr. maris ex urbis Mexico vicinitate. Mus. nostr.)

Femina fusca, supra paulo saturatior, capite sicut in mare cristata, alis et cauda nigricanti-fuscis, illis et crisso albo undique marginatis. (Descr. feminæ ex urbis Mexico vicinitate. Mus. nostr.)

Hab. North America, Southern, Middle, and Western States[12], Arizona &c.[6], Texas[7]. —Mexico[1 2], Coahuila (*Couch*[9]), Guanajuato (*Dugès*[8]), plateau of Mexico, valley of Orizaba and State of Puebla (*Sumichrast*[10]), valley of Mexico (*White*[5]), Sierras of Mexico (*le Strange*), Cimapan (*Deppe*[14]), Mirador (*Sartorius*[9]).

Swainson first described this species, in 1837, from male and female specimens obtained in Mexico, where it has since been found throughout the central and northern portions of that country, and thence across the frontier into Texas, New Mexico, Arizona, Lower and Southern California, and Southern Nevada. It does not, however, seem to be found much to the southward of the city of Mexico; for it was not included in the collections of either M. Sallé or of M. Boucard. It appears to be absent, too, from the western coast. Prof. Sumichrast says it is well distributed throughout the plateau of Mexico, and, so far as he knows, but rarely reaches the valley of Orizaba at an elevation of about 5000 feet[10]. He adds that it is very common at Tehuantepec, a village near the city of Mexico.

In the United States the habits of *P. nitens* have been watched by several excellent

observers; and the fullest summary of their notes is given by Dr. Coues in his 'Birds the Colorado Valley.'.

Its food consists of insects and fruits, chiefly the berries of different species of mistletoe.

The nest is described as a shallow structure, placed on a horizontal branch in a low tree; it measures about four inches across, and is composed of fine sticks, fibres of plants, and lined with a little cottonwood down and a stray feather. The number of eggs in a nest does not exceed two. These are of a ground-colour varying from greenish white to lavender and greyish white, and are spotted all over with different shades of brown. The spots are small, and most thickly scattered about the larger end of the egg.

Lichtenstein's unpublished title, *Ptilogonys aterrima*, belongs to this species, as the specimens in the Berlin Museum testify. These latter were obtained by Deppe at Cimapan, and are probably the first examples sent to Europe. According to Bonaparte[2], Lesson gave it the name of *Lepturus galeatus* in 1838[13]; but we have been unable to find any reference to it in Lesson's writings.

PHAINOPTILA.

Phainoptila, Salvin, P. Z. S. 1877, p. 367.

The wings in the single species of this genus are rounded, the proportional lengths of the primaries being much as in *Ptilogonys*; there is a long first primary, the second being about twice its length; the fourth and fifth are about equal and the longest in the wing; the bill is weak and narrow at the gape, and considerably depressed; the nostrils are open, and the rictal bristles short; the tarsi are longer and stouter than in any of the preceding genera, and in having a single shield in front resemble the tarsi of a normal Thrush.

On the whole, this genus seems best placed here in the family Ampelidæ, at least for the present, and until an examination of more of its structure than is represented by a skin has been undertaken.

Phainoptila is a monotypic genus, its single species being found in the mountains of Costa Rica.

1. **Phainoptila melanoxantha.** (Tab. XIV.)

Phainoptila melanoxantha, Salv. P. Z. S. 1877, p. 367[1]; Rowley, Orn. Misc. ii. p. 439, t. 79[2]; Boucard, P. Z. S. 1878, p. 53[3].

Nitens nigra, pectore et abdominis lateribus cum crisso olivaceis, ventre medio ardesiaco; hypochondriis et dorso postico luteis; rostro et pedibus nigerrimis. Long. tota 9·0, alæ 4·0, caudæ 3·5, rostri a rictu 0·9, tarsi 1·0. (Descr. maris ex San Francisco, Costa Rica. Mus. nostr.)

Femina obscure olivacea, capite summo nigro, gutture et abdomine medio ardesiacis, pectore et abdominis lateribus olivaceis, hypochondriis luteis, rostro et pedibus nigris. (Descr. feminæ ex Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica, San Francisco [1], Irazu (*Rogers*), Navarro [2 3], and Rancho Redondo [3] (*Boucard*).

The first specimen of this singular bird was sent us by Mr. H. Rogers in 1877, who was then in our employ collecting specimens in Costa Rica. We subsequently received others from the same source. In the meantime M. Boucard during his visit to Costa Rica obtained several examples at Navarro and Rancho Redondo, two of which were figured by Keulemans for Mr. Rowley, and published in the second volume of his 'Ornithological Miscellany' [2]. M. Boucard says that his specimens were obtained in semitropical forests below the region of oaks, at an elevation of about 4000 feet [3]. He further states that the birds go in pairs along the courses of the streams.

Section II. OSCINES LATIROSTRES.

Fam. HIRUNDINIDÆ *.

PROGNE.

Progne, Boie, Isis, 1826, p. 971 (type *Hirundo purpurea*, L.) ; Baird, Rev. Am. B. i. p. 271.

We are unable to recognize more than four species of this genus, though several others have been described or indicated by Prof. Baird, who, when examining the American Swallows for his 'Review of American Birds,' carried the subdivision of this genus to extreme limits. After closely comparing a large series of specimens from all parts of America, and making the necessary allowance for differences of age, season, and individuality, the four species we acknowledge are:—*P. purpurea* of North America and a large portion of South America, in both of which continents it breeds; *P. dominicensis*, which is peculiar to the Antilles, being found in all the larger islands and some of the Windward Islands †; *P. chalybea*, a resident species throughout Tropical America from Southern Mexico to Paraguay; and *P. tapera*, which has also a wide range in Tropical America, but which does not enter into our fauna. The two species which concern us are *P. chalybea*, which is by far the commoner and more widely distributed, and *P. purpurea*, which occurs in Mexico and British Honduras.

Progne may easily be recognized from all other American Hirundinidæ by its large size and robust build. The commissure of the mandible is sinuated; the nostrils open upwards and are nearly circular, the edges being rounded without any overhanging membrane. The legs are stout, the tarsus equal to the middle toe without the claw;

* The arrangement of the Hirundinidæ we follow here is that of Prof. Baird, who carefully investigated the American genera when compiling his 'Review of American Birds.' The Hirundinidæ form a more homogeneous family than many others of the Oscines; and, at least so far as America is concerned, there are no genera leading to other families, as we so frequently find to be the case.

† Lawr. Proc. U.S. Nat. Mus. i. p. 484.

the tibio-tarsal joint is feathered, the lateral toes are about equal, the claws strong and much curved.

1. Progne purpurea.

Hirundo purpurea, Linn. Syst. Nat. i. p. 344 [1]; d'Orb. & Lafr. Syn. Av. i. p. 68 [2]; Jones, Nat. Berm. p. 34 [3].

Progne purpurea, Darwin, Zool. Voy. Beagle, iii. p. 38 [4]; Burm. Syst. Ueb. iii. p. 140 [5]; Baird, U.S. Bound. Surv. ii. Birds, p. 11 [6]; Dresser, Ibis, 1865, p. 479 [7]; Dugès, La Nat. i. p. 141 [8]; Pelz. Orn. Bras. p. 16 [9]; Hudson, P. Z. S. 1872, p. 605 [10].

Hirundo subis, Linn. Syst. Nat. i. p. 344 [11].

Progne subis, Baird, Rev. Am. B. i. p. 274 [12]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [13]; Lawr. Mem. Bost. Soc. N. H. ii. p. 271 [14]; Baird, Brew. & Ridgw. N. Am. B. i. p. 329 [15]; Coues, B. Col. Vall. i. p. 445 [16].

Chalybeo-cærulea unicolor, alis et cauda nigris extus chalybeo nitentibus; plaga hypochrondriaca celata alba; tectricibus subcaudalibus quoque ad basin albis; rostro et pedibus nigris. Long. tota 7·7, alæ 5·7, caudæ rect. med. 2·2, rect. lat. 2·85, rostri a rictu 0·9, tarsi 0·6. (Descr. maris ex Brit. Honduras. Mus. nostr.)

♀ supra mari similis, sed colore magis obscuro; subtus griseo-albidis, plumis singulis ad basin fuscis. (Descr. feminæ ex California. Mus. nostr.)

Hab. North America [1] from the Arctic circle southwards in summer [16], Texas [7], Bermuda [3].—Mexico, Coahuila (*Couch* [6 12]), Mazatlan, Guadalajara and Tepic (*Grayson* [14]), Guanajuato (*Dugès* [8]), Alpine region of Vera Cruz (*Sumichrast* [13]); British Honduras, Belize (*Blancaneaux*).—Bolivia [2]; Brazil [5 9]; Argentine Republic [2 4 10].

Northern and Central Mexico seem to be the chief resort of this species within our limits. Here Grayson found it breeding both in Tepic and in Guadalajura in the month of May, making its nest under the eaves of the houses or in water-spouts; at Mazatlan he saw it but seldom, and then only accidentally during migration, flying very high [13]. The only naturalist who has observed the Purple Martin in Southern Mexico is Prof. Sumichrast, who found it in the alpine region of Vera Cruz, where he says it is resident [12]. It never occurred to us in Guatemala, but we have a skin of a male bird recently sent us from the neighbourhood of Belize by M. Blancaneaux. There are no records of its occurrence elsewhere in Central America.

Regarding the South-American bird, we are quite of Mr. Sclater's opinion [10], that the Swallow considered by writers previous to the publication of Prof. Baird's 'Review of American Birds' to be *Progne purpurea* is really that species; for with numerous specimens before us we are quite unable to detect any tangible evidence of the existence of more than one bird. *Progne purpurea* thus considered extends its range over a large part of the South-American continent; but it is probably absent from the western, north-western, and the extreme southern districts, as it is from the greater portion of Central America.

Referring again to its Mexican range, it seems not improbable that this is merely an extension of the area it inhabits during the summer months in North America, and

that the Mexican birds accompany the more northern ones in their winter migration. Against this theory is Prof. Sumichrast's observation that this bird is resident in the higher parts of Vera Cruz.

Our specimen from British Honduras has rather more white on the base of the under tail-coverts than is the case in one we have from California; it may therefore belong to the Cuban bird separated by Prof. Baird as *Progne cryptoleuca*; but the difference is, in our opinion, of no specific importance.

The Purple Martin is a very familiar bird in North America; and a full summary of the records of its habits is given by Brewer [15]. It breeds in convenient places in many of the public buildings in the towns and cities of the United States, and also in suitable boxes placed for the purpose near their dwellings by all classes of people.

It also breeds in South America, as Darwin states that he observed females at Bahia Blanca beginning to lay in September, having excavated deep holes in a cliff of compact earth [4].

An excellent account of it at this season is also given by Mr. W. H. Hudson [10].

As *P. purpurea* is migratory at both ends of its range, and as it breeds both in the northern and southern continents, the question arises whether the species raises two broods in the year, one in the summer months in the north, and another in the winter in the south, or do the birds of each extremity occupy alternately an intermediate country in common?—questions only to be answered by the closest observation of the movements of the birds themselves.

2. **Progne chalybea.**

Hirundo chalybea, Gm. Syst. Nat. i. p. 1026 [1].

Progne chalybea, Lawr. Ann. Lyc. N. Y. vii. p. 318 [2]; Cab. J. f. Orn. 1860, p. 402 [3]; Scl. & Salv. P. Z. S. 1873, p. 258 [4], 1879, p. 495 [5].

Progne purpurea (non Linn.), Cab. in Schomb. Reise n. Guian. iii. p. 671 [6].

Progne dominicensis (nec Linn.), Burm. Syst. Ueb. iii. p. 141 [7]; Scl. P. Z. S. 1857, p. 201 [8]; 1859, p. 364 [9]; 1860, p. 292 [10]; Scl. & Salv. Ibis, 1859, p. 13 [11]; Taylor, Ibis, 1860, p. 110 [12]; Owen, Ibis, 1861, p. 61 [13].

Hirundo domestica, Vieill. N. Dict. d'Hist. N. xiv. p. 520 (ex Azara) [14].

Progne domestica, Pelz. Orn. Bras. p. 17 [15].

Progne leucogaster, Baird, Rev. Am. B. i. p. 280 [16]; Salv. Ibis, 1866, p. 203 [17]; Lawr. Ann. Lyc. N. Y. ix. p. 96 [18]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [19]; v. Frantzius, J. f. Orn. 1869, p. 294 [20]; Scl. & Salv. P. Z. S. 1867, p. 569 [21]; 1870, p. 838 [22]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 17 [23].

Supra chalybeo-cærulea unicolor, alis caudaque nigricantibus chalybeo extus lavatis; subtus fusca, abdomine et crisso albidis, macula hypochondriaca celata alba; rostro et pedibus nigris. Long. tota 6·5, alæ 5·4, caudæ rectr. med. 2·25, rect. lat. 2·9; rostri a rictu 0·9, tarsi 0·45. (Descr. maris ex San Gerónimo, Guatemala. Mus. nostr.).

♀ mari similis, sed colore corporis supra obscuriore. (Descr. feminæ ex Cahabon, Guatemala. Mus. nostr.)

Hab. Mexico, San Andres Tuxtla (*Sallé* [8 16]), Jalapa (*de Oca* [9]), hot and temperate regions of Vera Cruz (*Sumichrast* [9]), Tehuantepec (*Grayson* [12]), Barrio (*Sumi-*

chrast [23]); Guatemala (*Skinner* [11]), Peten, Belize, Cahabon [16], Dueñas, Escuintla, Retalhuleu (*O. S. & F. D. G.*), San Gerónimo (*Owen* [13]); Salvador, Acajutla (*J. M. Dow* [16]), La Union (*O. S.*); Honduras, Comayagua (*Taylor* [12]), San Pedro (*G. M. Whitely* [22]); Costa Rica [20], San José (*Hoffmann* [3], *v. Frantzius* [18]), Nicoya (*Arcé*); Panama, Volcan de Chiriqui (*Arcé*), Lion Hill station (*M'Leannan* [2]). —Colombia [5]; Venezuela; Guiana [1 6]; Amazons Valley [4 21]; Ecuador [8 10]; Brazil [7 15]; Paraguay [14].

This is apparently a resident species over the wide area indicated above, or at most subject to very partial migration. We found it breeding in Guatemala, and Mr. Robert Owen obtained its eggs at San Gerónimo in 1860 [13]; and, so far as we know, it is a resident bird throughout the year in that country. In Mexico it is found, so Prof. Sumichrast tells us [23], on the shores of both oceans, not extending into the department of Vera Cruz further than an elevation of about 4000 feet. He adds that it nests at Orizaba in the steeples of churches and old buildings. In Guatemala it is also usually found in the low-lying districts; the greatest height at which we observed it was near Dueñas, nearly 5000 feet above the sea. In South America, E. Bartlett found it breeding in Eastern Peru [4], and Natterer met with it at all seasons of the year in Brazil [15].

Regarding the names which have been applied to this bird, we have no hesitation in using that of Gmelin, which was based upon the Guiana series, whence we have several examples not to be distinguished from our Central-American birds, the true *P. leucogastra* of Baird. *Hirundo domestica* is another name for the same species, bestowed upon it by Vieillot from Azara's description [14]. We have a large series of skins from all parts of South and Central America, and we are unable to detect any tangible differences between them.

Mr. W. H. Hudson* has given a good description of the habits of *P. chalybea* as observed by him in the vicinity of Buenos Ayres. The eggs of this species are white [13].

PETROCHELIDON.

Petrochelidon, Cabanis, Mus. Hein. i. p. 47 (1850) (type *Hirundo melanogaster*, Sw., = *Petrochelidon swainsoni*, Scl.); Baird, Rev. Am. B. i. p. 286.

There are four American species of this genus, three of which are found within our limits, and whose range is given below. The fourth is *P. ruficollaris*, Peale, of Western Peru, a bird unknown to us, but recognized by Prof. Baird. Other apparently congeneric species are found in various parts of the Old World, such as *P. nigricans* of Australia and *P. spilodera* of South Africa; so that *Petrochelidon* has a very extensive range indeed.

* P. Z. S. 1872, p. 605.

As in *Progne*, the nostrils open upwards without any overhanging membrane; but the size and general coloration of the species is very different from that of the members of *Progne*. The feathers of the forehead are erect and bristling, instead of lying flat as in *Progne*; and the commissure of the maxilla is in a simple curve, and not sinuated. The tarsi, except just the proximal end, are bare, and the rump rufous.

1. Petrochelidon pyrrhonota.

Hirundo pyrrhonota, Vieill. N. Dict. d'Hist. N. xiv. p. 519 [1].
Petrochelidon pyrrhonota, Scl. & Salv. Nomencl. Av. Neotr. p. 14 [2].
Hirundo americana, Gm. Syst. Nat. i. p. 1017 [3]?
Petrochelidon americana, Cab. Mus. Hein. i. p. 47 [4]; Pelz. Orn. Bras. p. 17 [5].
Hirundo lunifrons, Say, in Long's Exp. ii. p. 47 [6]; Dresser, Ibis, 1865, p. 479 [7].
Petrochelidon lunifrons, Scl. Cat. Am. B. p. 40 [8]; Lawr. Ann. Lyc. N. Y. vii. p. 317 [9]; Baird, Rev. Am. B. i. p. 288 [10]; Lawr. Mem. Bost. Soc. N. H. ii. p. 271 [11]; Baird, Brew. & Ridgw. N. Am. B. i. p. 334 [12]; Coues, B. Col. Vall. i. p. 426 [13].

Supra chalybeo-cærulea, alis et cauda nigricantibus; plumis dorsi medii albo marginatis, fronte lactescenti-alba, nucha fusca, uropygio rufo; capitis lateribus cum gutture rufis, mento et plaga pectorali nigris; corpore subtus reliquo albo, pectore, hypochondriis et crisso pallide fuscis; rostro nigro, pedibus corylinis. Long. tota 5·3, alæ 4·15, caudæ 1·95, rostri a rictu 0·55, tarsi 0·5. (Descr. maris ex Washington, U. S. Mus. nostr.)

♀ mari omnino similis.

Hab. North America generally [13], Texas [7].—Mexico (*De Saussure* [8]), Mazatlan and Tepic (*Grayson* [11]); Panama (*M'Leannan* [9 10]), at sea, off west coast of Central America (*J. M. Dow* [10]).—Brazil [5]; Paraguay [1].

Dr. Coues [13] has given an excellent account of the early history of this bird in North America, tracing it from the first notice of the species in the paper published by J. R. Forster in the 'Philosophical Transactions' of 1772, to the time it was named *Hirundo lunifrons* by Say in 1823. When compiling their 'Nomenclator Avium Neotropicalium,' Sclater and Salvin were unable to separate the South-American bird of this genus from that found in North America, and, rejecting Gmelin's title *H. americana* as of too uncertain application, decided to adopt that of Vieillot, *H. pyrrhonota*, as next in date [2]. On reexamining the question, we believe this view to be sound; we therefore use the name *Petrochelidon pyrrhonota* as the common title of this North- and South-American species. It further seems reasonable to suppose that the southern birds are only in Brazil and Paraguay in the winter months, and migrate from one continent to the other according to the season. This supposition is borne out by the fact that the ten specimens obtained by Natterer in various parts of Brazil were all shot in the months ranging from September to March [5]. Vieillot's description was based upon that of Azara, who obtained a single specimen of this Swallow in Paraguay, which he bought in the month of April, and never met with another.

Our knowledge of *P. pyrrhonota* in Mexico is almost confined to the observations of Grayson, who found it breeding in the month of May in the banks of the Mazatlan river, where he says it appeared to be a summer visitant, as he did not observe it in the winter months [11]. Mazatlan, therefore, may be considered the extreme southern limit of its breeding-quarters; but northward of this point, in the United States it is a very familiar species, except in the Southern States. The only other records we have of its occurrence in Central America are by Mr. Lawrence, who determined one of M'Leannan's Panama birds to be of this species [9], and Professor Baird, who tells us that another was obtained off the west coast of Central America by Capt. J. M. Dow [10].

The habits of *P. pyrrhonota* in North America are very fully given by Dr. Coues in his 'Birds of the Colorado Valley,' and especially its mode of nidification [13].

2. Petrochelidon swainsoni.

Hirundo melanogaster, Sw. Phil. Mag. new ser. i. p. 366 [1].

Petrochelidon melanogaster, Cab. Mus. Hein. i. p. 47 [2].

Petrochelidon swainsoni, Scl. P. Z. S. 1858, p. 296 [3]; 1859, p. 376 [4]; Cat. Am. B. p. 40 [5]; Baird, Rev. Am. B. i. p. 290 [6]; Salv. Ibis, 1866, p. 192 [7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [8]; Lawr. Bull. U. S. Mus. no. 4. p. 17 [9]; Dugès, La Nat. i. p. 141 [10].

Hirundo coronota, Licht. Preis-Verz. mex. Vög. p. 2, cf. J. f. Orn. 1863, p. 58 [11] (descr. nulla).

P. pyrrhonotæ valde similis, sed fronte rufa capitis lateribus concolori distinguenda. (Descr. feminæ ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mexico [2 5 11], Guanajuato (*Dugès* [10]), Plateau of Mexico (*Sumichrast* [8]), Tableland and Real del Monte (*Bullock* [1]), Mirador (*Sartorius* [6]), Totontepec (*Boucard* [4]), Oaxaca (*Boucard* [3 4]), Tehuantepec city (*Sumichrast* [9]); Guatemala, Dueñas [7], Godines (*O. S. & F. D. G.*).

Swainson's inappropriate name (*Hirundo melanogaster*) was the first given to this species, the black pectoral spot doubtless having suggested a word not applicable to another part of the bird. Mr. Sclater rectified this error by calling it *Petrochelidon swainsoni*; and this name has since been almost universally adopted. Had Lichtenstein added a sufficient description when he called the bird *Hirundo coronata* in 1831, this name might have been substituted for Swainson's; but we can only recognize it by reference to the specimens in the Berlin Museum, which belong undoubtedly to Swainson's species.

P. swainsoni may be easily recognized from *P. pyrrhonota* by the forehead being of a rich chestnut instead of creamy white. In this respect it resembles *P. fulva*, which differs again in not having a black pectoral spot, and in the flanks and crissum being strongly tinged with fulvous. Dr. Coues * treats these differences with less consideration than they really deserve; for he looks upon *P. fulva* as scarcely, if at all, different from *P. lunifrons* (=*P. pyrrhonota*), whilst *P. swainsoni* is placed as a simple synonym of

* B. Col. Vall. i. p. 426.

that species. Seeing that the differences between all three birds are definite and that each has its own peculiarities as regards migration and its distinct abode, we think that to place them together not justifiable.

Though *P. swainsoni* has been met with by many travellers in Mexico, we have nothing recorded of it beyond certain localities where it occurs. Prof. Sumichrast says it is peculiar to the plateau of Mexico, and that it rarely occurs elsewhere; still it has been found in the State of Oaxaca, and, even by Sumichrast himself, subsequently near the city of Tehuantepec, which is situated at but a slight elevation above the Pacific Ocean. In Guatemala it only twice came under our observation—once when we found it flying over the open land near Dueñas, at an elevation of nearly 5000 feet above the sea, and again near Godines, above the mountain-lake of Atitlan, as high as 7000 feet. On both occasions the birds were flying low, hawking for insects after the manner of their kindred.

3. **Petrochelidon fulva.**

Hirundo fulva, Vieill. Ois. Am. Sept. i. p. 62, t. 30[1].

Petrochelidon fulva, Scl. Cat. Am. B. p. 40[2]; Baird, Rev. Am. B. i. p. 291[3]; Gundl. Orn. Cub. p. 82[4].

Hirundo pœciloma, Gosse, B. Jam. p. 64[5].

Petrochelidon pœciloma, Baird, Rev. Am. B. i. p. 292[6].

Similis præcedentibus, sed pectore, hypochondriis et crisso rufis distinguenda; macula quoque pectoralis nigra abest. (Descr. exempl. ex Yucatan. Mus. nostr.)

Hab. MEXICO, Northern Yucatan (*Gaumer*); PANAMA (*M'Leannan*).—ANTILLES, Cuba[3 4], St. Domingo[1], Jamaica[2 5 6].

This species, which can be distinguished from both the preceding Swallows by the absence of the black pectoral spot and by its fulvous flanks and crissum, was first described and figured by Vieillot from specimens obtained in the island of St. Domingo.

It has since been traced to Cuba and Jamaica; for though the bird of the latter island was separated by Gosse under the name of *Hirundo pœciloma*[5], and its distinctness recognized by Prof. Baird[6], we fail to appreciate any really tangible grounds of distinction.

We now trace this Antillean bird to Yucatan, a specimen obtained there by Mr. Gaumer, now in our collection, being absolutely like our Cuban examples. Mr. Gaumer says that it is resident in Yucatan, frequenting the cave-like holes called "senotes." And, further, a single specimen, in bad condition, sent us by M'Leannan from Panama, must also be referred to *P. fulva*, and not to *P. pyrrhonota*, which has also been found there. As M'Leannan once had in his possession a few Cuban birds which he obtained in exchange, it is just possible that his specimen of *P. fulva* may have come from Cuba, and not from Panama; but, on the other hand, one of the island birds may have strayed thus far.

Dr. Gundlach [4] says that in autumn *P. fulva* changes its localities in Cuba from the northern to the more southern parts of the island; that it builds from March to June in various places, such as houses, sheds, and caves, in great numbers, but not in all parts of the island alike. It lays four or five white eggs covered with lilac spots, and others of reddish brown. In Jamaica its habits are very similar, it being a very familiar species, building in numbers in the houses attached to the old sugar-plantations.

ATTICORA.

Atticora, Boie, Isis, 1844, p. 172; Baird, Rev. Am. B. i. p. 305.

We recognize six species of this genus (a seventh, *A. patagonica*, being unknown to us), of which the three mentioned below occur within our region. The others all belong to South America—*A. fasciata* to Guiana and the valley of the Amazons, *A. melanoleuca* to Eastern Brazil, and *A. cinerea* to Ecuador. Of the species belonging to our district, *A. cyanoleuca* has a very extended range over the whole of Tropical America from Paraguay to Costa Rica; *A. tibialis* is found in the State of Panama and other parts of Colombia, and, it is said, Brazil; *A. pileata* is peculiar to Guatemala. Thus the whole genus is a Neotropical one, no member of which reaches Southern Mexico.

The bill is much more feeble in *Atticora* than in *Petrochelidon*, and the whole build of the bird less robust. The tail is longer in proportion to the body and more forked. The nostrils open upwards and are unprotected by a membrane. The tarsi are slender and longer in proportion to the size of the bird than in *Petrochelidon*; and the toes are weaker. The rump, moreover, is of nearly the same colour as the back.

Prof. Baird split up *Atticora* into four subgenera, of which *A. cyanoleuca* represents *Pygochelidon*, in which the basal joint of the middle toe is less adherent than in the other divisions, and the proximal end of the tarsus is feathered only on its inner surface. *Notiochelidon* is represented by *A. pileata*, and has the middle toe more united to the rest than in *Pygochelidon*; the tarsus, too, is wholly bare. *Neochelidon*, of which *A. tibialis* is the sole species, has the toe as in *Notiochelidon*; but the proximal end of the tarsus and the distal end of the tibia are densely feathered. These characters are but slight, and the species possessing them are best left in *Atticora*, where Prof. Baird placed them.

1. Atticora cyanoleuca.

Hirundo cyanoleuca, Vieill. N. Dict. d'Hist. N. xiv. p. 509 [1].

Atticora cyanoleuca, Burm. Syst. Ueb. iii. p. 147 [2]; Cab. J. f. Orn. 1860, p. 401 [3]; 1861, p. 92 [4]; Scl. Cat. Am. B. p. 40 [5]; Pelz. Orn. Bras. p. 18 [6]; Salv. P. Z. S. 1870, p. 184 [7]; Scl. & Salv. P. Z. S. 1873, p. 258 [8]; 1879, pp. 495 [9], 595 [10].

Atticora cyanoleuca, var. *montana*, Baird, Rev. Am. B. i. p. 310 [11]; Lawr. Ann. Lyc. N. Y. ix. p. 96 [12]; v. Frantzius, J. f. Orn. 1869, p. 294 [13].

Supra chalybeo-cyanea, capitis lateribus, tectricibus alarum minoribus crisso et pectoris lateribus concoloribus; subtus alba, alis et cauda nigricantibus; rostro nigro, pedibus corylinis. Long. tota 4·5, alæ 3·7, caudæ rectr. med. 1·5, rectr. lat. 2·1, rostri a rictu 0·45, tarsi 0·45. (Descr. exempl. ex Costa Rica. Mus. nostr.)

Hab. Costa Rica [4 13], San José (*Hoffmann* [3], *Carmiol* [7 12]), Barranca (*Carmiol* [7 12]); Panama, Calovevora (*Arcé* [8]).—South America generally to Bolivia [11], Paraguay [1], and the Argentine Republic [2 5 6 9 10].

Vieillot first described this Swallow, using for his basis Azara's "Golondrina de los timoneles negros" from Paraguay. We possess specimens from the adjoining provinces of the Argentine Republic, which doubtless represent the bird of Paraguay; and these do not differ in any important respect from our Costa-Rica examples, nor from many others from intermediate localities, the bird being spread over the whole of Tropical America. Prof. Baird, it is true, separated more northern individuals from those of Brazil and the basin of the La Plata; but the differences are very slight indeed.

Atticora cyanoleuca seems to be a common bird wherever it is found. It probably breeds in Costa Rica; but the only evidence we have on this point is the skins of young birds from that country in their first plumage. In Colombia [10] and Brazil it certainly breeds [2], laying white eggs. Of its nesting-habits in the Argentine Republic Mr. W. H. Hudson has given us an account*. It appears there in September, and uses forsaken holes and burrows for its nesting-place.

2. **Atticora pileata.** (Tab. XV. fig. 2.)

Atticora pileata, Gould, P. Z. S. 1858, p. 355 [1]; Scl. & Salv. Ibis, 1859, p. 13 [2]; Baird, Rev. Am. B. i. p. 307 [3].

Supra obscure brunnea, uropygio paulo saturatiore, pileo et capitis lateribus nigris pupureo tinctis, alis et cauda fusco-nigris; subtus alba, gutturis plumis singulis fuscis albo marginatis, hypochondriis fuscis; crisso nigro; rostro nigro, pedibus obscure corylinis. Long. tota 4·5, alæ 3·6, caudæ rectr. med. 1·35, rectr. lat. 2·0, rostri a rictu 0·45, tarsi 0·45. (Descr. maris ex Coban, Guatemala. Mus. nostr.)

♀ mari omnino similis.

Hab. Guatemala (*Skinner* [1 2]), Coban (*O. S. & F. D. G.* [3]), Quiché, Totonicapam, Quezaltenango, Barranco de Los Chocoyos, Calderas, ridge above Barsinas, Villa Lobos, Aceytuno (*O. S. & F. D. G.*).

An interesting and peculiar species, only found, so far as we yet know, in the higher parts of Guatemala, whence specimens were sent by the late G. U. Skinner to Gould, who described them in 1858. Our first intimate acquaintance with this Swallow was in February 1862, when staying at Coban, where it was a common species, frequenting the great church of the town; and our specimens were secured as they flew round over the courtyard of the house where we were staying, and which was close to the church. Having thus become familiar with the bird, we frequently observed it subsequently in the higher lands of the main Cordillera. Thus it was common at several points on the road from the city of Guatemala to Antigua, and we also observed

* P. Z. S. 1872, p. 844.

it in several parts of the Altos, at an elevation of at least 8000 feet above the sea. In its habits and mode of flight we noticed nothing to distinguish it from other Hirundinidæ.

3. Atticora tibialis.

Petrochelidon? tibialis, Cassin, Pr. Ac. Phil. vi. p. 370 [1].
Microchelidon tibialis, Scl. Cat. Am. B. p. 39 [2].
Neochelidon tibialis, Scl. Cat. Am. B. p. xvi [3]; Scl. & Salv. P. Z. S. 1864, p. 347 [4].
Atticora tibialis, Baird, Rev. Am. B. i. p. 307 [5]; Scl. & Salv. P. Z. S. 1879, p. 495 [6].

Fuliginosa, uropygio et corpore subtus paulo dilutioribus, tibiis plumosis albis, rostro et pedibus nigricantibus. Long. tota 4·0, alæ 3·3, caudæ rectr. med. 1·3, rectr. lat. 1·75, rostri a rictu 0·4, tarsi 0·4. (Descr. exempl. ex Panama. Mus. nostr.)

Hab. Panama, line of railway (*M'Leannan* [4 5]).—Colombia [6]; Brazil [1 2].

Cassin, who first described this peculiar Swallow, gave Brazil as its supposed habitat; but as it was subsequently obtained by M'Leannan on the isthmus of Panama, the correctness of the statement of its being found in Brazil was doubted [4]. It may, however, be worthy of notice that there is a skin of this bird in the Swainson collection at Cambridge with the locality "Brazil" on its label. On the other hand, no mention whatever is made of *A. tibialis* in any of the chief works on Brazilian ornithology, those of Prince Neuwied, Burmeister, Pelzeln, &c. That the bird does occur beyond the limits of the State of Panama is proved by the specimen sent us from the State of Antioquia by Salmon, who found it at Remedios, where it was breeding, the nest being made of dry grasses and placed in the hole of a bank [6].

Atticora tibialis has no near allies, but in colour is not unlike *A. cinerea*. The white tufts on the tibiæ are a very distinctive character.

HIRUNDO.

Hirundo, Linnæus, Syst. Nat. i. p. 343 (1766); Baird, Rev. Am. B. i. p. 293.

Only one species of true *Hirundo* occurs in America, the nearest ally of which is perhaps *H. gutturalis*, the eastern form of the well-known *H. rustica* of Europe.

The genus itself, as restricted, contains about twenty-five species, which are found distributed over a large portion of the world.

Hirundo can readily be distinguished from *Atticora* by the nasal opening being overhung by a membrane in such a manner that the nostril opens laterally, instead of directly upwards.

The same character is to be found in *Tachycineta*; but in that genus the tail is but very slightly forked, whereas in *Hirundo* the lateral feathers are attenuated and twice as long as the central feathers.

1. Hirundo erythrogaster.

Hirundo erythrogaster, Bodd. Tabl. Pl. Enl. p. 45 [1]; Scl. & Salv. P. Z. S. 1867, p. 569 [2]; Pelz. Orn. Bras. p. 18 [3]; Coues, B. Col. Vall. i. p. 407 [4].

Hirundo horreorum, Barton, Fragm. Nat. Hist. Penns. i. p. 17 [5]; Baird, U.S. Bound. Surv. ii. Birds, p. 11 [6]; Rev. Am. B. i. p. 294 [7]; Scl. & Salv. Ibis, 1859, p. 13 [8]; P. Z. S. 1864, p. 347 [9]; A. & E. Newton, Ibis, 1859, p. 66 [10]; Lawr. Ann. Lyc. N.Y. vii. p. 317 [11], viii. p. 98 [12]; Bull. U.S. Nat. Mus. no. 4, p. 17 [13]; Mem. Bost. Soc. Nat. Hist. ii. p. 271 [14]; Proc. U.S. Nat. Mus. i. p. 455 [15]; Scl. P. Z. S. 1864, p. 173 [16]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [17]; Salv. P. Z. S. 1870, p. 184 [18]; Baird, Brew. & Ridgw. N. Am. B. i. p. 339 [19]; Dugès, La Nat. i. p. 141 [20]; Gundl. Orn. Cub. i. p. 82 [21]; Zeledon, Cat. Av. Costa Rica, p. 5 [22].

Hirundo rufa, Gm. Syst. Nat. i. p. 1018 [23]; Burm. Syst. Ueb. iii. p. 148 [24].

Hirundo fumaria, Licht. Preis-Verz. mex. Vög. p. 2, cf. J. f. Orn. 1863, p. 58 [25].

Hirundo rustica, Jones, Nat. Berm. p. 34 [26].

Supra chalybeo-cærulea, alis et cauda nigris, fronte, gutture et crisso fulvo-rufis, subalaribus et abdomine paulo dilutioribus, pectoris lateribus dorso concoloribus; cauda furcata elongata, rectricibus omnibus præter duas medias albo maculatis; rostro nigro, pedibus corylinis. Long. tota 6·0, alæ 4·5, caudæ rectr. med. 1·8, rectr. lat. 3·1, rostri a rictu 0·5, tarsi 0·4. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Av. hornot. Subtus albescens, fronte, gutture et crisso vix fulvo tinctis, cauda minus elongata. (Descr. exempl. ex Calobre, Panama. Mus. nostr.)

Hab. North America from Alaska and Greenland southwards [4], Bermuda [26].—Mexico [25], San Diego in Nuevo Leon (*Couch* [6 7]), Guadalajara and Tepic (*Grayson* [14]), Guanajuato and Puebla (*Dugès* [20]), valley of Mexico (*White* [16]), Plateau of Mexico (*Sumichrast* [17]), Tehuacan and Tehuantepec (*Sumichrast* [13]), Yucatan (*Gaumer*); Guatemala, Dueñas [7 8], San Gerónimo, Yzabal (*O. S. & F. D. G.*); Costa Rica (*Zeledon* [22]); Panama, Volcan de Chiriqui, Calobre (*Arcé* [18]), Line of Railway (*M'Leannan* [10 11]), at sea off the west coast of Central America (*J. M. Dow* [7]), at sea 100 miles north of Colon (*O. S.*).—Antilles, Cuba [21], Jamaica [7], St. Croix [10], Sombrero [12], Guadeloupe [15]; South America generally to South Brazil [23 24].

There can be little doubt that the Swallow of South America is the same as that of the Northern continent, and that it visits the former country during the autumn, winter, and early spring months, retiring northwards in spring to breed. All the records that we can find of the date of the appearance of the bird in South America range between September or October and April. In the West Indies, little is known of *H. erythrogaster* in Jamaica; but in Cuba it is found in both autumn and spring migration, appearing the first time in August, and again in May, but it does not spend the intervening months in the island. Dr. Gundlach says that in the autumn birds in perfect plumage are not to be found, but in spring all are in adult feather [21]. In Mexico, Grayson says [14], it is very abundant in May and June at Tepic, where it breeds under the roofs of houses, in the corridors; he adds [14] that it is only seen accidentally on the sea-coast in September and October, when it is apparently migrating. It is also said to breed in the Plateau of Mexico [19]; and we have a note by Mr. le Strange

that it resorts to the houses of the city of Mexico for this purpose. In Guatemala we only know it as a migrant, arriving as early as the first days of September and leaving again in April; but in the former month adult birds are to be seen with young ones in their first plumage. The only record we have of its occurrence in Costa Rica is from its name being included in Mr. Zeledon's list of the birds of that country [22]. From the State of Panama, however, we have many skins of both adult and young birds. The latest spring record we have of the appearance of this Swallow in this district is the 7th May, when a bird was seen at sea by Salvin about 100 miles from Colon.

In North America *Hirundo erythrogaster* is a familiar summer visitant, at which season it spreads over nearly the whole country, including the British Provinces and Alaska, and even straying to Greenland and Bermuda [26]. Its habits generally, as well as its mode of nesting, are fully described in works on North-American Ornithology [4 19].

TACHYCINETA.

Tachycineta, Cabanis, Mus. Hein. i. p. 48 (1850); Baird, Rev. Am. B. i. p. 296.
Iridoprocne, Coues, B. Col. Vall. i. p. 412.

This genus was separated by Prof. Cabanis to contain *Hirundo thalassina* and a second but aberrant form, *H. bicolor*; this last has since been placed in a distinct subgenus by Dr. Coues, under the name of *Iridoprocne*; and with *H. bicolor* he associated four other South and Central American species, leaving *H. thalassina* to stand alone in *Tachycineta*. The difference between the last-mentioned species and the rest consists chiefly in its somewhat peculiar plumage, which is soft and like velvet and without metallic gloss. *H. bicolor* and it allies all have the upper plumage with a rich shining metallic tint.

From *Hirundo Tachycineta* differs in the shape of the tail, which is not deeply forked, but only slightly emarginate, the colour, too, of the under surface of all the species is white.

Like *Hirundo*, the nostrils open laterally, being overhung by a membrane.

a. *Ptilosis lævis et velutina, colore metallico absente.* (Tachycineta.)

1. Tachycineta thalassinus.

Hirundo thalassina, Sw. Phil. Mag. new ser. i. p. 366 [1]; Baird, U.S. Bound. Surv. ii. Birds, p. 11 [9]; Rev. Am. B. i. p. 299 [3]; Baird, Brew. & Ridgw. N. Am. B. i. p. 347 [4].

Petrochelidon thalassina, Scl. & Salv. Ibis, 1859, p. 13 [5]; Scl. P. Z. S. 1864, p. 173 [6]; Dugès, La Nat. i. p. 141 [7].

Tachycineta thalassina, Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [8]; Coues, B. Col. Vall. i. p. 419 [9].

Supra virescens, purpureo præcipue ad nucham tinctus, tectricibus caudæ superioribus quoque purpureis, alis et cauda viridescenti-nigris, illarum secundariis intimis interdum albo terminatis ; loris nigris, capitis lateribus infra et post oculos et corpore subtus omnino albis ; uropygii lateribus albis ; rostro nigro, pedibus fuscis. Long. tota 4·7, alæ 4·5, caudæ rectr. med. 1·55, rectr. lat. 1·85, rostri a rictu 0·5, tarsi 0·4. (Descr. maris ex San Gerónimo, Guatemala. Mus. nostr.)

Hab. North America, Middle and Western Provinces, Arizona and New Mexico [9].— Mexico, Saltillo (*Couch* [2 3]), Tableland, Real del Monte (*Morgan* [1]), valley of Mexico (*White* [6]), Hacienda de Tupatero (*Dugès* [7]), Plateau, temperate and hot regions of Vera Cruz (*Sumichrast* [8]), Orizaba (*le Strange*, *Sumichrast* [3]); Guatemala, Dueñas (*O. S.* [5]), San Gerónimo (*O. S. & F. D. G.*), Coban (*Sarg*).

This pretty Swallow enjoys the privilege of having only the single specific name bestowed upon it by Swainson in 1827, when he described Mexican specimens obtained on the tablelands and at Real del Monte by Mr. Morgan [1]. Since then *Tachycineta thalassinus* has been found in the middle and western provinces of the United States and in the adjoining provinces from British Columbia southwards.

In Mexico this species we believe to be only known as a winter visitant *, there being no positive evidence that it remains during the summer months for the purpose of breeding. It is almost certain, however, that the bird will be found to breed on the confines of the United States frontier, as it is well known to do so in Arizona [9]. In Guatemala we only observed it in the winter months, from November till March; it was then common about the open lands near Dueñas, and about the plains of San Gerónimo, at an elevation of about 3000 feet. We noticed nothing peculiar in their flight; they were generally found associated with *T. bicolor*, hawking insects in the same flock. Southwards of Guatemala it has not yet been noticed, nor yet in any of the Antilles.

T. thalassinus makes its nest of sticks and straws, lined with feathers, either in the hole of a tree or in the cleft of a rock. The eggs, five in number, are pure white [9].

b. *Ptilosis densa, dorso colore metallico tincto.* (Iridoprocne.)

2. Tachycineta bicolor.

Hirundo bicolor, Vieill. Ois. Am. Sept. i. p. 61, t. 31 [1]; Baird, U.S. Bound. Surv. ii. Birds, p. 11 [2]; Rev. Am. B. i. p. 297 [3]; Jones, Nat. Berm. p. 34 [4]; Baird, Brew. & Ridgw. N. Am. B. i. p. 344 [5].

Petrochelidon bicolor, Scl. P. Z. S. 1857, p. 201 [6]; 1859, p. 364 [7]; Scl. & Salv. Ibis, 1859, p. 13 [8].

Tachycineta bicolor, Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [9]; Lawr. Mem. Bost. Soc. N. H. ii. p. 271 [10]; Coues, B. Col. Vall. i. p. 413 [11]; Gundl. Orn. Cub. p. 83 [12].

Hirundo prasina, Licht. Preis-Verz. mex. Vög. p. 2, cf. J. f. Orn. 1863, p. 58 [14].

---

* In the 'History of North-American Birds' it is said to breed on the plateau of Mexico, on Prof. Sumichrast's authority [4]; this author, however, in his published work [8], makes no such statement; but, by including it amongst the resident birds of the State of Vera Cruz, he leaves us to infer that it does do so.

Supra chalybeo-viridescens, alis caudaque nigricantibus, illis intus tenuissime albo terminatis; subtus albus; rostro nigro, pedibus corylinis. Long. tota 5·7, alæ 5·7, caudæ rectr. med. 2·0, rectr. lat. 2·4, rostri a rictu 0·6, tarsi 0·45. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America from Alaska and Great Slave Lake to Arizona &c.[11], Bermuda [4]. —Mexico (*Deppe* [13]), Matamoras (*Couch* [2 3]), Mazatlan (*Grayson* [10]), Plateau of Mexico (*Sumichrast* [9], *le Strange*), San Jose (*Sallé* [6]), Jalapa (*de Oca* [7]), Orizaba (*Sumichrast* [3]), Pine ridge above Mirador (*Sartorius* [3]); Guatemala (*Skinner* [8]), Vera Paz [3], Dueñas, Pajal Grande, San Gerónimo (*O. S. & F. D. G.*).—Cuba.

This species appears to be commoner in the eastern than in the western States, though found over nearly the whole of North America during the breeding-season: during the winter, however, large numbers remain in Florida; others pass to Cuba, Mexico, and Guatemala.

There is no positive evidence of the species breeding in Mexico, though it is included by Prof. Sumichrast amongst the resident birds of the Plateau of Mexico, and a specimen was obtained by Dr. Sartorius in the pine-region above Mirador, in the month of June [3].

In Guatemala it is a winter visitant to the tablelands and to the neighbourhood of San Gerónimo in Vera Paz, where it is frequently found associating with *T. thalassinus*.

The habit of this species to congregate in vast flocks has often been alluded to by writers on North-American ornithology [11]. We once observed a flock of this kind in the open space in the forests of the Volcan de Fuego called Pajal Grande, the elevation of which is about 5000 feet above the sea-level. This was on the 25th December 1873, when a vast flock of these birds were seen circling round and round in a compact mass, and every now and then settling on some low shrubs, weighing down the outer boughs and crowding together like a swarm of bees. We could detect no object in this assemblage; it was neither the season of migration, nor was it the roosting-time, as it took place in the afternoon of a bright sunny day.

In Cuba, Dr. Gundlach includes *T. bicolor* amongst the regular winter visitants to the island, where it arrives later than *Hirundo erythrogaster*, remains the winter, and leaves again for the north in April.

It breeds in holes in trees and in stumps, making a nest of fine soft hay, thickly lined with feathers. The eggs are, like those of *T. thalassinus*, white [11].

3. **Tachycineta albilinea.** (*Hirundo albilinea*, Tab. XV. fig. 1.)

Petrochelidon albilinea, Lawr. Ann. Lyc. N. Y. viii. p. 2 [1]; Scl. & Salv. P. Z. S. 1864, p. 347 [2].
Tachycineta albilinea, Lawr. Mem. Bost. Soc. N. H. ii. p. 271 [3].
Hirundo albilinea, Baird, Rev. Am. B. i. p. 300 [4]; Zeledon, Cat. Av. Costa Rica, p. 5 [5].
Petrochelidon leucoptera, Lawr. Ann. Lyc. N. Y. vii. p. 317 [6] (nec Gm.).
Petrochelidon littorea, Salv. P. Z. S. 1863, p. 189 [7]; Ibis, 1866, p. 192 [8].

Supra æneo-viresceus; regione præoculari nigra et supra eam linea parva utrinque alba, uropygio albo-fusco leviter striato; alis et cauda nigricantibus, secundariis in pogonio externo albo anguste marginatis; subtus omnino albus, abdomine vix fusco leviter striato, rostro et pedibus nigris. Long. tota 4·5, alæ 3·8, caudæ rectr. med. 1·5, rectr. lat. 1·7, rostri a rictu 0·6, tarsi 0·4. (Descr. maris ex Belize, Brit. Honduras. Mus. nostr.)

Hab. Mexico, Mazatlan (*Grayson* [3 4], *Boucard*); British Honduras, Belize river, Cays of the coast (*O. S. & F. D. G.*); Guatemala, Peten, Yaxha, Rio Dulce, Huamuchal, Chiapam, San José de Guatemala [4] (*O. S. & F. D. G.*); Salvador, La Union (*O. S.*); Honduras, Amapala (*O. S.*); Nicaragua, Corinto (*Baxter*); Costa Rica (*Zeledon* [5]); Panama, (*M'Leannan* [1 2 4 6]), Matachin (*O. S.*)

Tachycineta albilinea was described from Panama specimens by Mr. Lawrence [1], and a few weeks afterwards as *Petrochelidon littorea* by Salvin, from specimens obtained during our expedition of 1861–63 [7]. It has since been found to be abundant on both coasts of Central America [7], and also of Mexico from Mazatlan and Vera Cruz southwards.

As will be seen above, it has been met with at nearly every port of Central America on the Pacific coast. In Guatemala and British Honduras, besides observing it on the coast, we found it not uncommon frequenting the inland freshwater lakes of Peten and Yaxha, and all down the Belize river.

At Matachin on the Chagres river a nest with young was found in May 1873, in an old post, a hollow palm which had once served to support the roof of a hut.

At Mazatlan, the most northern recorded limit of its range, Grayson says [3] it is common and resident, being one of the few non-migratory Swallows. At all seasons of the year its twitter may be heard about the eaves of the tiled houses or the spacious corridors of the peculiarly constructed Moorish Mexican haciendas. He often saw it skimming along the streets, at times almost touching the pavement in its pursuit of flies. Its customary haunts, he says, are near or about large towns or haciendas, and he rarely saw it far from some human habitation. In April it commences to form its nest, usually beneath the eaves of houses or in holes in the wall, often in the hollow tubes for conveying the water from the flat roofs of the buildings. This Swallow, he adds, is very sociable in its habits, and may often be seen in considerable numbers perched upon the roofs of the houses.

This account of the habits of *T. albilinea* hardly agrees with our experience. We only found them along river-courses or frequenting lagoons or lakes, a favourite perch being the dead bough of a snag projecting out of a river. Such places would often be far from any village; and though these birds were sometimes observed by us near habitations, they did not seem to be the attraction, but some river flowing hard by.

T. albilinea is probably a resident species wherever it is found.

Its nearest ally is *T. leucorrhous* of Peru, Southern Brazil, and the Argentine Republic.

STELGIDOPTERYX.

Stelgidopteryx, Baird, Birds N. Am. p. 312 (1858) ; Rev. Am. B. i. p. 312.

The American Rough-winged Swallows were usually placed in the genus *Cotile* prior to Prof. Baird's separation of them, first as a subgenus in 1858, and afterwards as a genus in 1865. Their general colour-resemblance to *C. riparia* probably led to this arrangement. Prof. Baird, however, pointed out that not only was the outer web of the primaries roughened by the barbs of the feather being pointed and recurved, but that the nostrils opened upwards without any overhanging membrane. These characters seem enough to separate *Stelgidopteryx* from the rest of the American Swallows.

Prof. Baird indicated five species of this genus in his 'Review of American Birds;' but these, we think, ought to be reduced to three, *S. fulvipennis* being, in our opinion, not separable from *S. serripennis*, and *S. fulvigula* and *S. uropygialis* being young and adult of the same bird. We thus have:—a North-American species, *S. serripennis*, which spreads over Mexico and Central America as far as the State of Panama; *S. uropygialis*, which is found in Central America as far north as Costa Rica, and thence extends over the northern parts of South America; and, lastly, *S. ruficollis*, which is found in Brazil and Bolivia, and northwards to the Amazons valley and Eastern Ecuador.

S. serripennis is a fairly well defined species; but the limits between *S. uropygialis* and *S. ruficollis* are not so definite.

1. Stelgidopteryx serripennis.

Hirundo serripennis, Aud. Orn. Biogr. iv. p. 593 [1].

Cotyle serripennis, Scl. P. Z. S. 1856, p. 285 [2]; Cat. Am. B. p. 41 [3]; Baird, U.S. Bound. Surv. ii. Birds, p. 11 [4]; Scl. & Salv. Ibis, 1859, p. 13 [5]; Owen, Ibis, 1861, p. 61 [6]; Dresser, Ibis, 1865, p. 479 [7].

Stelgidopteryx serripennis, Baird, Rev. Am. B. i. p. 314 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 547 [9]; Baird, Brew. & Ridgw. N. Am. B. i. p. 350 [10]; Coues, B. Col. Vall. i. p. 438 [11].

Cotyle fulvipennis, Scl. P. Z. S. 1859, p. 364 [12]; Scl. & Salv. Ibis, 1860, p. 31 [13].

Stelgidopteryx fulvipennis, Baird, Rev. Am. B. i. p. 316 [14]; Lawr. Ann. Lyc. N. Y. ix. p. 200 [15]; Salv. P. Z. S. 1870, p. 184 [16]; Ibis, 1870, pp. 109, 114 [17].

Stelgidopteryx fulvigula, Lawr. Ann. Lyc. N. Y. ix. p. 96 [18] (nec Baird).

Murino-brunnea, alis et cauda nigricantibus, secundariis extus albo tenuissime limbatis, subtus dilutior, gula et ventre medio sordide griseis, illa aliquando rufescenti tincta, crisso albo; rostro et pedibus nigricantibus. Long. tota 4·7, alæ 4·6, caudæ 2·3, rostri a rictu 0·55, tarsi 0·4. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

Av. hornot. pectore rufescente, secundariis extus et alarum tectricibus rufescentibus differt. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America (except N.E. States) from Canada and British Columbia southwards [11], Texas [7].—Mexico, Nuevo Leon (*Couch* [4 8]), valley of Mexico (*le Strange*), Cordova (*Sallé* [2]), Orizaba (*Botteri* [3 14]), Jalapa (*de Oca* [12 14]), State of Vera Cruz

(*Sumichrast* [9]), Merida in Yucatan (*Schott* [15]); Guatemala [5], Dueñas [13 14], Rio Guacalate near Dueñas, San José de Guatemala, Retalhuleu, Coban, Rio Dulce (*O. S. & F. D. G.*), San Gerónimo (*Owen* [6]); Costa Rica, Atirro (*Carmiol* [18]); Panama, Calovevora (*Arcé* [16]).

Professor Baird restricted the name *S. serripennis* to the North-American and Mexican birds of this form, calling those from Guatemala and the rest of Central America by Mr. Sclater's title *S. fulvipennis*. The latter name was founded upon a young specimen with rufous edges to the wing-coverts and secondaries. Admitting this to be the case, Prof. Baird still retained the name, but limited the characters to the throat being slightly rufous and the plumage being more glossy in the southern bird than in true *S. serripennis*. With a considerable series before us, selected from all points of the range of this species, we find that in several cases these differences are evanescent and therefore untrustworthy, and prefer to call all the birds with the crissum white to the end, and the rump the same colour as the back, by the name of *S. serripennis*. *S. uropygialis*, the more southern bird, has a rich fulvous throat, a yellowish belly, the ends of the longest feathers of the crissum with a broad blackish band, and the rump grey.

Stelgidopteryx serripennis is doubtless resident in Mexico; but the evidence on this point is not satisfactory. In Guatemala, Mr. Owen obtained a nest near San Gerónimo in May. This was composed of grass and fine roots, the inside being strewn with pieces of dead flag. It was placed in an excavation two feet long; in a bank of white sand, and consisted of a tunnel terminating in a chamber just large enough for the bird to turn round; and here the nest was made, containing five white eggs [6].

In the United States *S. serripennis* is migratory, so that the resident birds of Mexico and Central America must receive a large accession to their numbers during the winter season. It breeds in the States, its mode of nidification being just as described by Mr. Owen.

Referring again to the synonymy of this bird, we notice that the birds from Atirro in Costa Rica called *S. fulvigula* by Mr. Lawrence [18] really belong here, and not to *S. uropygialis*.

2. Stelgidopteryx uropygialis.

Cotyle uropygialis, Lawr. Ibis, 1863, p. 181 [1]; Ann. Lyc. N. Y. viii. p. 3 [2]; Scl. & Salv. P. Z. S. 1864, p. 348 [3].

Stelgidopteryx uropygialis, Baird, Rev. Am. B. i. p. 317 [4]; Salv. P. Z. S. 1870, p. 184 [5]; Ibis, 1870, p. 109 [6]; Scl. & Salv. P. Z. S. 1879, p. 496 [7].

Stelgidopteryx fulvigula, Baird, Rev. Am. B. i. p. 317 [8]; v. Frantz. J. f. Orn. 1869, p. 295 [9]; Salv. Ibis, 1869, p. 313 [10]; 1874, p. 307 [11].

Cotyle flavigastra, Cassin, Pr. Ac. Phil. 1860, p. 133 [12]; Lawr. Ann. Lyc. N. Y. vii. p. 317 [13].

S. serripenni similis, uropygio canescente, gula fulva, ventre medio flavicante, et crisso fusco terminato distinguenda. (Descr. maris ex Panama. Mus. nostr.)

Av. hornot. gula tota et pectore fulvis, secundariis extus et tectricibus alarum fulvo marginatis. (Desc. exempl. ex Costa Rica. Mus. nostr.)

Hab. Costa Rica (*v. Frantzius* [9]), Angostura (*Carmiol* [8]); Panama, Chitra (*Arcé* [6]), line of railway (*M'Leannan* [1 2 3 4 12]), Obispo (*O. S.*), Rio Truando (*Schott* [4 11]).—Colombia [5]; Guiana.

This species is very closely allied to the Brazilian *S. ruficollis*, so much so that we are not sure that the differential character of the light-coloured rump can always be detected. When Central-American and South-Brazilian examples are compared, the distinction can easily be traced; but specimens from the Amazons valley and Eastern Ecuador are intermediate, and, though they incline rather to *S. ruficollis*, the rump is lighter than in typical examples of that species. Guiana birds are of a generally lighter colour, both above and below; but we hardly think them worthy of separation on that account.

Regarding the bird called *S. fulvigula*, we have an example exactly agreeing with Prof. Baird's description; but we are convinced that it is only an immature specimen of *S. uropygialis*; and having had an opportunity of examining the specimens of *Stelgidopteryx* in the Smithsonian Institution in 1874, we came to the conclusion that *S. fulvigula* was merely the young of *S. uropygialis*, and that Salvin's views respecting these birds, given in 'The Ibis' for 1870 [6] and 1874 [11], and which are adopted here, are correct.

Stelgidopteryx uropygialis was first separated by Mr. Lawrence from *S. ruficollis*, specimens having been supplied him from Panama by M'Leannan [1]. We, too, have examples from the same source; and the bird was subsequently seen in abundance at Obispo by Salvin in May 1873, its favourite resting-place being the telegraph-wires placed along the line of railway. Salmon, who observed *S. uropygialis* breeding near Remedios in the Cauca valley, obtained its eggs, which are white; but he says nothing of its nest [7].

COTILE.

Cotile, Boie, Isis, 1822, p. 550.
Cotyle, Baird, Rev. Am. B. i. p. 318, et auctt.

A number of species have been placed in the genus *Cotile*, few of which properly belong there. From the American Swallows formerly included in *Cotile* the species of the genus *Stelgidopteryx* have long been removed, *C. fucata* alone remaining associated with *C. riparia*; but even this bird belongs rather to *Atticora*, as Prof. Baird has already pointed out; so that *Cotile riparia* stands the sole representative of the genus in America. In Europe the same state of things is to be found; for *C. rupestris* and its allies are not true members of *Cotile*, being more closely allied to *Hirundo*, as the spots on the rectrices, their building-habits, and their spotted eggs testify.

Cotile has the nostrils overhung by a membrane as in *Hirundo*; its peculiarities are in the greater proportional length of the lateral claws and in the distal end of the tarso-metatarsus being furnished with a tuft of feathers.

The range of *Cotile* is almost cosmopolitan; and no land-bird is so widely spread as *C. riparia*.

1. Cotile riparia.

Hirundo riparia, Linn. Syst. Nat. i. p. 344 [1]; Jones, Nat. Berm. p. 34 [2].

Cotyle riparia, Cab. J. f. Orn. 1861, p. 93 [3]; March, Pr. Ac. Phil. 1863, p. 296 [4]; Baird, Rev. Am. B. i. p. 319 [5]; Salv. Ibis, 1866, p. 192 [6]; Lawr. Ann. Lyc. N. Y. ix. p. 96 [7]; Bull. U.S. Nat. Mus. no. 4, p. 17 [8]; Mem. Bost. Soc. N. H. ii. p. 271 [9]; v. Frantzius, J. f. Orn. 1869, p. 295 [10]; Pelz. Orn. Bras. p. 18 [11]; Scl. & Salv. P. Z. S. 1873, p. 258 [12]; Baird, Brew. & Ridgw. N. Am. B. i. p. 353 [13]; Coues, B. Col. Vall. i. p. 435 [14]; Gundl. Orn. Cub. p. 83 [15]; Dresser, B. Eur. iii. p. 505, t. 163 [16].

Supra murina, uropygio paulo dilutiore secundariorum apicibus tenuissime albis; subtus alba, torque pectorali murino; rostro et pedibus nigris. Long. tota 4·7, alæ 4·0, caudæ 2·0, rostri a rictu 0·5, tarsi 0·4. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America generally [4 14], Bermuda [2].—Mexico, Tehuantepec (*Sumichrast* [8 9]); Guatemala, Dueñas, Yzabal (*O. S. & F. D. G.*[6]); Costa Rica (*v. Frantzius* [3 7 10]).—Antilles, Cuba [15], Jamaica [4]; South America, Amazons valley [12], Guiana, Brazil [11]; Europe [1]; Asia; Africa.

The Sand-Martin of the American Continent is admitted by all writers to be inseparable from the familiar species of the Old World. In the United States it is a summer visitant for the purpose of breeding. As winter approaches it passes southwards, and has been observed in Guatemala and Costa Rica and in some of the Antilles at that season; but it is nowhere common. Nor does it appear in any numbers in South America. Natterer only obtained a single specimen in the Brazilian province of Mato Grosso, Bartlett a few near Nauta on the upper Amazons; and quite recently Mr. H. Whitely has sent us a specimen from Bartica Grove in British Guiana. In the Antilles its presence has been but seldom noticed; for Dr. Gundlach only once met with it, in the spring of 1843, when he shot a few individuals which were associating with numbers of *Tachycineta bicolor*. In Mexico it has only been seen near Tehuantepec, and in Guatemala only near Dueñas and on the shores of the Lake of Yzabal. In Costa Rica, Dr. von Frantzius speaks of its breeding in numbers in holes in rocks; but we think he must refer to one of the species of *Stelgidopteryx* [10]. A single specimen only was sent by him and his associates to the Berlin Museum [3].

The breeding-habits of *Cotile riparia* are too well known to need restating here, beyond the fact that a hole burrowed in a sandy bank forms its nest, and that it lays white eggs.

Section III. OSCINES TENUIROSTRES.

Fam. CŒREBIDÆ.

DIGLOSSA.

Diglossa, Wagler, Isis, 1832, p. 280 (type *D. baritula*); Hartl. Rev. Zool. 1842, p. 56; Sclater, Ibis, 1875, p. 206.
Agrilorhinus, Bp. Nouv. Ann. Sc. Nat. i. p. 408 (1838).

The members of this peculiar genus are almost confined to the Andes of South America from Bolivia in the south to Colombia and Venezuela in the north. One species is found in the highlands of Guiana and two within our region—*D. plumbea* being peculiar to the highlands of Panama and Costa Rica, and *D. baritula* having a wider range in Southern Mexico and Guatemala. All the members of the genus are found in upland forests, never probably descending below an elevation of 6000 feet.

Mr. Sclater has recently published a monograph of the genus *Diglossa*, in which he includes fifteen species. To these we have added a sixteenth, *D. glauca* of Bolivia. The species in this monograph are divided into two sections, according as their plumage is mingled with rufous or whole-coloured. All, however, are very closely allied, and all have the peculiar formation of the bill which makes the genus one of easy recognition.

Diglossa baritula was the first species discovered, and became the type of the genus *Diglossa*, described by Wagler in 1832. The same species furnished the type specimens of Prince Bonaparte's genus *Agrilorhinus*, and also of Lichtenstein's *Campylops*, which latter name, according to Dr. Cabanis, was not published till 1851, when it was mentioned in the first part of the 'Museum Heineanum.' The whole genus was split up by Cassin in 1864 into a number of smaller subgenera, the characters of which were drawn from coloration. Mr. Sclater justly remarks that this step was not at all necessary.

Diglossa may easily be recognized from all the rest of the Cœrebidæ by the hook of the maxilla, which projects a long way beyond the end of the mandible, and is abruptly curved downwards; the mandible is rather swollen at the base, and curves upwards towards the end. On the cutting-edge of the maxilla, just before the commencement of the curve of the terminal hook are several dentate serrations. The nostril is overhung with a membrane; the rictal bristles are well developed. The tongue is divided towards the end (hence the origin of the name of the genus). The wings are moderately rounded, the first primary well developed, about equal to the seventh, the third and fourth equal and longest. The tail is moderately forked.

Part 14

1. Diglossa baritula.

Diglossa baritula, Wagl. Isis, 1832, p. 281 [1]; Hahn, Atlas, Heft 8, t. 1, 2 [2]; Hartl. Rev. Zool. 1842, p. 56 [3]; Gray & Mitch. Gen. B. t. 42. f. 1, 2 [4]; Cab. Mus. Hein. i. p. 97 [5]; Bp. Consp. i. p. 401 [6]; Scl. P. Z. S. 1856, p. 286 [7]; 1859, pp. 364 [8], 376 [9]; 1864, p. 173 [10]; Ibis, 1875, p. 207 [11]; Scl. & Salv. Ibis, 1859, p. 14 [12]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548 [13]; Dugès, La Nat. i. p. 140 [14]; Salv. Cat. Strickl. Coll. p. 174 [15].

Agrilorhinus sittaceus, Bp. Nouv. Ann. Sc. Nat. i. p. 408 [16].

Uncirostrum sittaceum, Lafr. Rev. Zool. 1839, p. 292 [17].

Uncirostrum brelayi, Lafr. Rev. Zool. 1839, p. 100 [18].

Supra saturate ardesiaca, capite nigricante, alis et cauda nigricantibus extus dorsi colore limbatis; subtus ferruginea, gula et cervicis lateribus ardesiacis; rostro corneo, mandibulæ basi pallidiore; pedibus corylinis. Long. tota 4·4, alæ 2·25, caudæ 1·8, rostri a rictu 0·5, tarsi 0·6. (Descr. maris ex Jalapa, Mexico. Mus. nostr.)

♀ fusca; secundariis et tectricibus alarum rufescente limbatis, subtus sordide fusca, ferrugineo tincta. (Descr. feminæ ex Calderas, Guatemala. Mus. nostr.)

Hab. Mexico [5 17 18] (*Petz* [1], *Sirletto* [16]), valley of Mexico (*White* [10], *le Strange*), alpine region of Vera Cruz (*Sumichrast* [13]), Jalapa (*de Oca* [8]), Juquila and Totontepec (*Boucard* [9]); Guatemala (*Constancia* [12 15], *Skinner* [12]), Quezaltenango, Calderas on the Volcan de Fuego, Volcan de Agua, Santa Barbara in Vera Paz, Coban (*O. S. & F. D. G.*).

Guatemalan specimens differ slightly from Mexican in that the slate-colour of the throat in the male extends further towards the chest, but this difference hardly merits nominal acknowledgment.

Diglossa baritula was discovered in Mexico by Dr. Petz, whose specimens were placed in the Museum at Würzburg. They were described by Wagler in 1832 [1], and subsequently figured by Hahn [2]. In 1838 Bonaparte described the same species as *Agrilorhinus sittaceus* [16]; and in 1839 Lafresnaye named it *Uncirostrum brelayi* [18]. The latter name was shown by Dr. Hartlaub in 1842 to belong to the same species as that described by Wagler, whose title has the priority [3].

In Mexico the range of *D. baritula* seems confined to the more southern portions of the country. Mr. White and Mr. le Strange both obtained specimens in the Valley of Mexico; but we have no record of its being found northwards of this point. In the State of Vera Cruz Sumichrast considered it a denizen of the alpine region, where he found it at an altitude of nearly 10,000 feet [13]. M. Sallé obtained it near Cordova [7], de Oca in the neighbourhood of Jalapa [8], and M. Boucard at Juquila and Totontepec, both in the State of Oaxaca [9].

In Guatemala we found it in the forests of the uplands and in the belts which surround the volcanoes between the elevations of 7000 and 10,000 feet above the sea. Here it frequents bushes and the edges of the forest, and is restless in search of insect-food amongst the flowers, leaves, and twigs. It is usually found singly or in families.

Salmon obtained the eggs of *Diglossa albilateralis* and of *D. personata* in the

Colombian State of Antioquia. These are of a greenish-blue ground, thickly marked at the larger end with red-brown spots. The nest obtained by the same collector is open and made of moss, fibres, and rootlets, and lined at the bottom with moss.

Of the nest and eggs of *D. baritula* and of *D. plumbea* we have as yet had no tidings.

2. **Diglossa plumbea.** (Tab. XV. A. figg. 1 ♂, 2 ♀.)

Diglossa plumbea, Cab. J. f. Orn. 1860, p. 411 [1]; Lawr. Ann. Lyc. N. Y. ix. p. 97 [2]; v. Frantz. J. f. Orn. 1869, p. 297 [3]; Salv. P. Z. S. 1870, p. 185 [4]; Scl. Ibis, 1875, p. 217 [5].

Omnino schistacea, subtus pallidior, capite nigricantiore, uropygio cærulescentiore; rostro corneo, mandibulæ basi pallidiore; pedibus corylinis. Long. tota 4·4, alæ 2·2, caudæ 1·75, rostri a rictu 0·55, tarsi 0·7. (Descr. maris ex Irazu, Costa Rica. Mus. nostr.)

♀ fusca; subtus pallidior, alis et cauda fusco limbatis. (Descr. feminæ ex Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica (*v. Frantzius* [1]), Irazu [3], San Juan [2 3], Quebrada Honda [2] (*v. Frantzius*), Irazu (*Rogers*), Candelaria (*Zeledon* [3]); Panama, Volcan de Chiriqui (*Arcé* [4]).

This *Diglossa* in Costa Rica and Panama entirely takes the place of the Mexican and Guatemalan *D. baritula*; but like that species it is confined to the high mountain-ranges and volcanoes.

It was discovered by Dr. v. Frantzius, who sent a male specimen to the Berlin Museum, which was described by Dr. Cabanis in 1860 [1]. The same traveller subsequently observed it in the Volcan de Irazu and near San Juan; and Mr. Zeledon also met with it at Las Cruces, in the mountain-range of La Candelaria [3]. Southwards of this our collector Enrique Arcé obtained several examples during his excursions to the southern slopes of the Volcan de Chiriqui. These differ in no way from Costa-Rica examples. Southward of Chiriqui *Diglossa plumbea* has not yet been met with.

DACNIS.

Dacnis, Cuvier, Règn. Anim. i. p. 395 (1817). (Type *Motacilla cyana,* Linn.)

Thirteen or fourteen species are included in this genus, which is a purely Neotropical one, spread over the whole of the hotter parts of South America, and occurring in our region as far north as Nicaragua. Only four species, however, are found within our border, one of which, the common *Dacnis cayana*, has a range almost as extensive as that of the genus itself; *D. ultramarina* is hardly separable from this, and has as yet only been noticed in Central America between Nicaragua and the State of Panama. The third is *D. venusta*, which for a long time was supposed to be peculiar to Costa Rica and Panama, but has now been traced into the northern provinces of Colombia. The fourth is that described below as *D. viguieri*, from the isthmus of Darien. The southern species are chiefly concentrated in the upper portion of the valley of the Amazons, and in States through which the Andes run. Two other species occur in Guiana and three in South-eastern Brazil.

Dacnis may be recognized by its sharp, slightly depressed, almost conirostral bill. The nostril is at the lower portion of the membrane covering the nasal fossa; the

rictal bristles are short; the tarsi and toes are stout, and the claws strong. The plumage generally is rather close; and in most of the species the males have a large proportion of blue in their coloration; in some species this is replaced by green, and in *D. flaviventris* by yellow.

1. **Dacnis cayana.**

Motacilla cayana, Linn. Syst. Nat. i. p. 336 [1].

Dacnis cayana, Scl. Cat. Am. B. p. 50 [2]; Scl. & Salv. P. Z. S. 1867, p. 977 [3]; 1879, p. 496 [4]; Salv. P. Z. S. 1870, p. 185 [5]; Pelz. Orn. Bras. p. 25 [6].

Cærulea; loris, macula postoculari, gula, dorso medio, alis et cauda nigris, tectricibus alarum cæruleo limbatis, rostro nigro, pedibus carneis. Long. tota 4·5, alæ 2·6, caudæ 1·8, rostri a rictu 0·7, tarsi 0·75. (Descr. maris ex Chiriqui, Panama. Mus. nostr.)

♀ viridis, alis et cauda viridi limbatis, capite summo et genis cæruleis, gula fusca cæruleo lavata. (Descr. feminæ ex Chiriqui, Panama. Mus. nostr.)

Hab. Panama, Mina de Chorcha (*Arcé* [5]).—South America, from Colombia [4] to Guiana [1 2], Amazonia [3] and Brazil [6].

This is one of the commonest birds of South America, having a range extending over the whole of the tropical portion of that continent from South Brazil and Bolivia to Colombia. It is not found, however, in the Antilles. In Central America we have only seen specimens from Chiriqui, which almost exactly correspond with typical Guiana examples; the throat, however, is less deeply black. Others we have belonging to this form of *Dacnis* all have a tinge of the blue of *D. ultramarina*, though in some cases the difference is so slight that we hardly know with which race to place them; or, indeed, if *D. ultramarina* is worthy of being kept distinct from *D. cayana*.

It is only in this north-western corner of its range that any variation is to be seen in *D. cayana*; for the tint of the blue of the plumage of the male is remarkably constant wherever else the bird is found. As another species (*C. cœrebicolor*) occurs in the adjoining district, it may be that the variation found in *C. cayana* is due to the infusion of some *C. cœrebicolor* blood, and that this has given rise to *C. ultramarina*, which is certainly intermediate between the two, and this to a variable extent.

2. **Dacnis ultramarina.**

Dacnis ultramarina, Lawr. Pr. Ac. Phil. 1864, p. 106 [1]; Ann. Lyc. N. Y. viii. p. 180 [2]; ix. p. 97 [3]; Scl. & Salv. P. Z. S. 1864, p. 348 [4]; Salv. P. Z. S. 1870, p. 185 [5].

Dacnis cœrebicolor, Lawr. Ann. Lyc. N. Y. vii. p. 291 (nec Sclater) [6].

Dacnis cayana, Salv. Ibis, 1872, p. 315 [7].

D. cayanæ similis, sed colore maris cæruleo ultramarino lavato forsan diversa. (Descr. maris ex Panama. Mus. nostr.)

Hab. Nicaragua, Chontales (*Belt* [7]), Greytown (*Holland* [2 6]); Costa Rica, Angostura (*Carmiol* [3]); Panama, line of railway (*M'Leannan* [1 4 6]), Chepo (*Arcé* [5]).

This *Dacnis*, from the isthmus of Panama, was separated from *D. cœrebicolor* of

Colombia by Mr. Lawrence in 1864, on account of the blue of the male having an ultramarine rather than a purple-blue tint, *D. cayana* having a verditer-blue shade. *D. ultramarina*, therefore, is intermediate between the other species.

We have several specimens which agree well with typical examples of Mr. Lawrence's bird, but others are not so easily placed, and pass almost insensibly into the coloration of *D. cayana*. Mr. Lawrence in his description says that *D. ultramarina* has no black spot behind the eye; but this we find to be not invariably the case. He also adds that the black of the throat is not so pure nor so well defined as in *D. cayana*, a very slight character, though constant so far as we can see, but one which is hardly sufficient of itself to justify the separation of the whole of the Central-American birds from *D. cayanâ*.

We have already spoken of the Chiriqui birds being inseparable in their blue tint from the true Guiana form. In Costa Rica, however, and in Nicaragua (the most northern limit of the range of the bird) all the specimens have a slight tint of ultramarine, and for this reason we now place them under this title. At the same time we should not object to the name *D. cayana* being made to embrace *D. ultramarina*, for we believe that it is not improbable that this step will ultimately have to be taken.

3. **Dacnis venusta.**

Dacnis, sp., Lawr. Ann. Lyc. N. Y. vii. p. 319[1].

Dacnis venusta, Lawr. Ann. Lyc. N. Y. vii. p. 464[2]; ix. p. 97[3]; Scl. Ibis, 1863, p. 311, t. 7[4]; Scl. & Salv. P. Z. S. 1864, p. 348[5]; 1879, p. 497[6]; Salv. P. Z. S. 1870, p. 185[7].

Nigerrima; capite postico, genis et cervicis lateribus, dorso medio, uropygio et scapularibus nitide cæruleis; tibiis coccineis; rostro et pedibus nigris. Long. tota 4·5, alæ 2·5, caudæ 1·6, rostri a rictu 0·6, tarsi 0·6. (Descr. maris ex Panama. Mus. nostr.)

♀ sordide virescens, uropygio cærulescente, subtus gula cinerea, abdomine toto sordide ochraceo. (Descr. feminæ ex Panama. Mus. nostr.)

Hab. Costa Rica, Dota mountains (*Carmiol*[3]), Tucurriqui (*Arcé*); Panama, Bugaba (*Arcé*[7]), line of Railway (*M'Leannan*[1 2 4 5]).—Colombia[6].

This pretty species was one of M'Leannan's discoveries on the line of the Panama Railway. The first specimen he obtained and sent to Mr. Lawrence was a female[1], and it was not until the same collector secured the male that Mr. Lawrence described it under the above name. These specimens were subsequently sent to Mr. Sclater, and inspired him to write one of those useful and practical little Monographs which have from time to time proceeded from the pen of our industrious colleague. Mr. Sclater took the opportunity of figuring this species on this occasion[4]

On the isthmus of Panama *Dacnis venusta* would appear to be not uncommon, as we have received several specimens from thence. It also occurs within our territory as far as Costa Rica, where several collectors have met with it, and also in the intermediate district of Chiriqui. For our knowledge of the extension of *Dacnis venusta* into South America we are indebted to the late Mr. T. K. Salmon, who obtained a single male

example at Remedios, at an altitude of 2360 feet above the sea. This village is on the upper waters of the Rio Ité, an affluent of the Rio Magdalena. It is probable therefore that this species is found in suitable places over the lower valleys of the Cauca and Atrato; but it has not yet come within the reach of the bird-hunters of Bogota.

4. **Dacnis viguieri,** Oustalet. (Tab. XV. A. fig. 3.)

"*Dacnis* viridi-cyanescens, loris, dorso caudaque nigris; remigibus primariis nigris, pogonio interno albis; secundariorum primis nigrescentibus, margine externo viridi, ultimis læte flavo-viridibus, intus nigrescentibus; rostro pedibusque nigris. Long. tota 0·120 met., alæ 0·060, caudæ 0·050, tarsi 0·015, rostri (a fronte) 0·010.

"Tête, gorge, poitrine, ventre, sous-caudales et sus-caudales d'un vert brillant fortement glacé de bleu, et correspondant à la couleur appelée en France *cendre-vert*; lores, dos et queue d'un noir profond; rémiges noires, avec le bord des barbes internes blanc; premières pennes secondaires noirâtres, lisérées de vert clair en dehors; dernières secondaires en majeure partie vertes avec le bord interne noirâtre; couvertures les unes d'un vert glacé de jaune, ou dorées, les autres d'un vert brillant glacé de bleu, avec du noir dans la partie recouverte; bec et pattes d'un noir uniforme. Iris jaune d'or (d'après M. Viguier).

"Cette espèce a été rapportée au Musée en 1877 par M. le Dr. Viguier, qui l'avait obtenue dans l'isthme de Panama, sur les bords du golfe de Darien avec beaucoup d'autres oiseaux (*Syrnium virgatum*, *Harpagus fasciatus*, *Centurus pucherani*, *Trogon massena*, *Dendrœca blackburniæ*, *Procnias occidentalis*, &c.). Soumise à l'examen de MM. Sclater et Salvin et M. le Cte. de Berlepsch, elle leur a paru différer de toutes les espèces de *Dacnis* actuellement connues."

Dr. Oustalet has kindly sent us the above description of this pretty *Dacnis*, of which there is a single specimen in the Paris Museum. Some time ago Mr. Keulemans made us a sketch of the bird, and this we now reproduce on the accompanying Plate. It will at once be evident that the bird is a very distinct one, and has no near allies in the genus.

CHLOROPHANES.

Chlorophanes, Reichenbach, Handb. Sp. Orn. Scansoriæ, p. 233 (1853).

Chlorophanes may be distinguished from *Dacnis* by its more elongated curved bill, the cutting-edge of the maxilla is more rounded, and there is a notch near the end hardly, if at all, visible in *Dacnis*. The plumage of the male has a more silky gloss.

Two species of this genus were recognized in the 'Nomenclator,' one being the widely ranging *C. spiza*, the distribution and variations of which are given below. The second species was described as *C. purpurascens* from a skin from Venezuela. This last bird is an exaggerated form of the darker race found in the Upper Amazons, from Colombia to Bolivia.

1. Chlorophanes spiza.

Certhia spiza, Linn. Syst. Nat. i. p. 186 [1].

Chlorophanes spiza, Lawr. Ann. Lyc. N. Y. viii. p. 174 [2]; Salv. Cat. Strickl. Coll. p. 177 [3].

Chlorophanes guatemalensis, Scl. P. Z. S. 1861, p. 128 [4]; Scl. & Salv. P. Z. S. 1864, p. 349 [5]; 1870, p. 836 [6]; Salv. Ibis, 1866, p. 203 [7]; 1872, p. 315 [8]; P. Z. S. 1867, p. 137 [9]; 1870, p. 185 [10].

Chlorophanes spiza, var. *guatemalensis*, Lawr. Ann. Lyc. N. Y. ix. p. 97 [11]; v. Frantz. J. f. Orn. 1869, p. 297 [12].

Chlorophanes atricapilla, Scl. & Sal. Ibis, 1859, p. 14 [13]; 1860, p. 32 [14]; Lawr. Ann. Lyc. N. Y. vii. p. 319 [15].

Grammineo-viridis; alis et cauda extus obscurioribus, capite summo et lateribus nigerrimis, rostri maxilla culmine nigra, tomiis et ad basin cum mandibula flavis, pedibus fuscis. Long. tota 5·5, alæ 3, caudæ 2, rostri a rictu 0·8, tarsi 0·75. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀. Psittaceo-viridis fere unicolor, subtus paulo dilutior. (Descr. feminæ, ex Choctum, Guatemala. Mus. nostr.)

Hab. Guatemala (*Skinner* [13]), Choctum (*O. S.*[4]), Kampamak and Yaxcamnal (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [6]); Nicaragua, Chontales (*Belt* [8]); Costa Rica (*v. Frantzius* [12]), Tuiz and Turrialba (*Carmiol* [11], *Arcé*); Panama, Bugaba (*Arcé* [12]), David (*Hicks* [2]), Boquete de Chitra, Cordillera de Tolé [9], Calovevora (*Arcé* [10]), Lion-Hill Station (*M'Leannan* [5 15]).—Guiana; Western Ecuador

The propriety of separating the somewhat varied races of this species is questionable, and the possibility of doing so is rendered more difficult from the fact of specimens from British Guiana recently sent us by Mr. H. Whitely being almost exactly like our Central-American examples. The males of these are all of a grassy green hue, and have little of the purplish gloss observable in Ecuadorean, Amazonian, and Bolivian specimens. Colombian specimens, even in the Cauca valley, hardly differ from these latter ones, whereas at Panama the green birds are found. From Western Ecuador we have a specimen shot in the Balzar Mountains to the northward of the Bay of Guayaquil. This is the greenest of our whole series, and must be placed with our Central-American birds.

Regarding the name the Central-American bird should bear, we are in some little doubt. That the title *Certhia spiza* of Linnæus is applicable to one of these races seems unquestionable, and it may well have been given to the Guiana form. The Central-American bird agreeing sufficiently with this may therefore also be called *C. spiza*. Should the Amazonian and Brazilian bird require nominal distinction, Vieillot's name *C. atricapilla* is available for it.

Though we think the Central-American birds to be inseparable amongst themselves and from the Guiana bird, it must be noted that a certain amount of variation can still be traced. The bill in the Guatemala birds is decidedly longer than that of more southern specimens, and the wing is rather longer also. The Panama bird, though of the same colour as the Guatemalan, has the short bill of specimens from South America.

Chlorophanes spiza in Guatemala is only found in the forest-region of the Atlantic side of the mountains, up to an elevation of about 2000 to 3000 feet. At Choctum

and its vicinity in Vera Paz we found it not uncommon in February 1862. It here frequents the openings in the forest. In Guiana Mr. Whitely found *C. spiza* both at Bartica Grove, nearly at the sea-level, and in the Roraima Mountains, some 5000 or 6000 feet above it.

CŒREBA.

Cœreba, Vieillot, Ois. Am. Sept. ii. p. 70 (1807).
Arbelorhina, Cabanis, Arch. f. Nat. 1847, i. p. 325.

There are only four really recognizable species of *Cœreba*, so far as we can see, though several others have been indicated, chiefly by Dr. Cabanis. Of these four, *C. cyanea* and *C. cærulea* are found over the whole of the tropical portion of South America, the former penetrating our country as far north as Southern Mexico, and also occurring in the island of Cuba. In Central America *C. lucida* is found taking the place of *C. cærulea.* The fourth species, *C. nitida*, is an inhabitant of the upper valley of the Amazons, and Colombia probably on the eastern slopes of the Andes.

The species of *Cœreba* are all very similar in coloration, the males being deep blue of various shades, and the wings and tail black. *C. cyanea* is easily recognized from all the others, the male by its turquoise-blue spot on the head, and by the under wing-coverts being yellow in both sexes.

The bill in *Cœreba* is longer than in any other genus of this family; it is slender and gradually arched, the cutting-edge of the maxilla being furnished with an indentation near its extremity. The tail is short and nearly square at the end, and the tarsi and toes moderately strong.

1. Cœreba cyanea.

Certhia cyanea, Linn. Syst. Nat. i. p. 188 [1].
Cœreba cyanea, d'Orb. & Lafr. Syn. Av. ii. p. 24 [2]; Cab. Mus. Hein. i. p. 96 [3]; Burm. Syst. Ueb. iii. p. 150 [4]; Scl. P. Z. S. 1856, p. 286 [5]; Lawr. Ann. Lyc. N. Y. ix. p. 97 [6]; Scl. & Salv. P. Z. S. 1870, p. 836 [7]; 1873, p. 260 [8]; Pelz. Orn. Bras. p. 25 [9]; Salv. Cat. Strickl. Coll. p. 177 [10].
Arbelorhina cyanea, Gundl. Orn. Cub. p. 105 [11].
Cœreba carneipes, Scl. P. Z. S. 1859, p. 376 [12]; 1864, p. 173 [13]; Lawr. Ann. Lyc. N. Y. vii. pp. 291 [14], 318 [15]; viii. p. 175 [16]; Scl. & Salv. Ibis, 1860, p. 32 [17]; P. Z. S. 1864, p. 349 [18]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 548 [19]; Salv. P. Z. S. 1867, p. 137 [20]; 1870, p. 185 [21].

Nitide cærulea, capite summo æruginoso-cæruleo; fronte anguste, loris et regione oculari, dorso medio, alis et cauda nigerrimis; alis intus flavissimis; rostro nigro, pedibus carneis. Long. tota 4·7, alæ 2·55, caudæ 1·6, rostri a rictu 0·8, tarsi 0·6. (Descr. exempl. ex Lanquin, Guatemala. Mus. nostr.)

♀ sordide virescens, alis et cauda fuscis extus viridescente limbatis, subtus gula sordide flavo striata, subalaribus flavis. (Descr. feminæ ex Retalhuleu, Guatemala. Mus. nostr.)

Hab. Mexico, Cordova (*Sallé* [5]), Playa Vicente (*Boucard* [12]), valley of Mexico (*White* [13]), hot region of Vera Cruz (*Sumichrast* [19]); British Honduras, Corosal (*Roe*); Guatemala (*Constancia* [10]), Dueñas [17], Medio Monte, Escuintla, Retalhuleu, Coban,

Lanquin, Choctum (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [7]); Nicaragua, Chontales (*Belt*); Costa Rica (*v. Frantzius* [6]), Bebedero (*Arcé* [6]); Panama, David (*Hicks* [16]), Bugaba, Volcan de Chiriqui, Chitra, Castillo, Cordillera del Chucu, Cordillera de Tolé, Calovevora, Santiago, Santa Fé (*Arcé* [20 21]), line of Railway (*M'Leannan* [14 15 18]).—South America generally to Bolivia [2] and Brazil [3 4 9]; Cuba [11].

Cœreba cyanea is found over nearly the whole of the continental portion of the Neotropical region, being an inhabitant of the low-lying country up to an elevation of about 3000 or 4000 feet. We once observed it at Dueñas in Guatemala at a height of nearly 5000 feet; but its occurrence so high must be considered exceptional. So far as our experience goes, it is not a bird of the open savannas, but resorts to the edges of the forests and second-growth woods, and may even be seen in the hedgerows of villages in such situations. It is absent from the West-Indian islands with the exception of Cuba, where, singularly enough, it occurs to the exclusion of all species of *Certhiola*, whose place it seems to take. This is the more remarkable, as the Antilles foster *Certhiola* to such an extent that nearly every island has its distinct race.

In 1859 Mr. Sclater separated Mexican specimens of *C. cyanea* under the name of *C. carneipes* [12], at the same time doubting whether the minute differential characters to which he drew attention were really of specific value. The receipt of a large series of specimens from a wide unbroken range has convinced us that no such separation can be maintained; the bird, in fact, being unusually constant in its coloration, considering the vast area over which it is spread.

In its habits *C. cyanea* is restless in search of insects, climbing over every twig and examining every leaf in its way. We never met with its nest or eggs.

2. Cœreba lucida.

Cœreba lucida, Scl. & Salv. Ibis, 1859, p. 14 [1]; Moore, P. Z. S. 1859, p. 53 [2]; Lawr. Ann. Lyc. N. Y. vii. pp. 291 [3], 318 [4]; Scl. & Salv. P. Z. S. 1864, p. 349 [5]; Salv. P. Z. S. 1867, p. 137 [6]; 1870, p. 185 [7].

Cœreba cærulea, Scl. P. Z. S. 1856, p. 140 [8].

Indigotico-cærulea; capite paulo dilutiore, fronte, loris, gula usque ad pectus, alis et cauda nigris; rostro nigro, pedibus carneis. Long. tota 4·0, alæ 2·3, caudæ 1·3, rostri a rictu 0·85, tarsi 5·5. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ viridis; subtus sordide albicans, pectore toto viride striato, hypochondriis viridibus. (Descr. feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Guatemala (*Skinner* [1]), Choctum (*O. S. & F. D. G.*); Honduras (*Leyland* [2]); Panama, David (*Bridges* [6]), Bugaba (*Arcé* [7]), line of Railway (*M'Leannan* [3 4 5]).

This Central-American species seems fairly separable from *C. cærulea* of the Southern continent; not only does the colour of the male differ in being of a less dense purplish-blue, but the black of the throat extends further on to the breast. These differences are very apparent when Central-American and Guiana birds are compared. The range

of *C. lucida* is restricted to Central America, between Guatemala, whence the original specimens were obtained [1], and Panama [3]. Immediately south of this, in the Colombian State of Antioquia, the true C. *cærulea* occurs.

In Central America it cannot be called a common bird, and is not nearly so abundant as its congener *C. cyanea*. We only found it in the forest-country of Vera Paz, at an elevation of about 1200 feet above the sea, and all other places where it has been noticed hitherto are situated at elevations not much above the sea-level.

Its habits are quite similar to those of *C. cyanea*, and doubtless to those of *C. cærulea*, its widely spread representative in South America.

CERTHIOLA.

Certhiola, Sundevall, Öfvers. Vet.-Ak. Handl. 1835, p. 99 (type *Certhia flaveola*, Linn.); Finsch, Verh. k. k. zool.-bot. Ges. Wien, 1871, p. 739 et seqq.; Baird, N. Am. B. i. p. 425.

Few American genera have received more varied treatment as regards the number of its species than *Certhiola*, some ornithologists recognizing a large number, others comparatively few. We are rather disposed to admit a closer separation for the birds of the West-India islands, where the inhabitant of each island has a definite and restricted habitat, than for the continental forms, where no such restriction of range occurs. Of the island forms no less than twelve species have been described, some of which have very marked characters. On the mainland we are only able to recognize three species, viz. *C. mexicana* of the country we are now treating of, *C. luteola* of Venezuela and Trinidad, and *C. chloropyga* of Guiana and Brazil. To these may be added *C. caboti* of the island of Cozumel, which has its nearest ally in the Bahama islands. This bird and *C. mexicana* are the only ones found within our region.

The usual colour of *Certhiolæ* is dusky or black on the back, with or without a white alar speculum; the rump is sometimes yellow, and the belly generally so; the throat varies from white to grey and to black. One remarkable species, from the island of St. Vincent, is almost entirely black, and has been described by Mr. Lawrence as *Certhiola atrata* *. The bill of *Certhiola* is sharp and strongly arched; the cutting-edge of the maxilla towards the end has several tooth-like serrations, somewhat as in *Diglossa*. The tarsi and feet are strong, and the tail short and square.

1. Certhiola mexicana.

Certhiola mexicana, Scl. P. Z. S. 1856, p. 286 [1]; 1859, pp. 364 [2], 376 [3]; Salv. Ibis, 1861, p. 352 [4]; Scl. & Salv. P. Z. S. 1864, p. 349 [5]; 1879, pp. 497 [6], 597 [7]; Lawr. Ann. Lyc. N. Y. ix. p. 98 [8]; Finsch, Verh. z.-b. Ges. Wien, 1871, p. 772 [9]; Baird, N. Am. B. i. p. 428 [10].

* *Cf.* Lawr. Ann. N. Y. Ac. Sc. i. p. 149. But may not this be *Dicæum aterrimum*, Less. Traité d'Orn. p. 303, which Pucheron (Rev. Zool. 1846, p. 134) says is a *Certhiola*? See also Finsch, Verh. k. k. zool.-bot. Ges. Wien, 1871, p. 762.

Certhiola flaveola, d'Orb. & Lafr. Syn. Av. ii. p. 24 (nec Linn.) [11].

Certhiola luteola, Lawr. Ann. Lyc. N. Y. vii. p. 291 [12]; viii. p. 175 [13]; Salv. P. Z. S. 1870, p. 185 [14] (nec Cabanis).

Certhiola peruviana, Cab. J. f. Orn. 1865, p. 413 [15]; Baird, N. Am. B. i. p. 428 [16].

Supra saturate fusca, capite nigro, superciliis elongatis et speculo alari albis, alis et cauda fusco-nigris, hujus rectricibus externis albido terminatis, uropygio flavicante; subtus gula cinerea, abdomine toto flavo; rostro nigro, pedibus plumbeis. Long. tota 3·8, alæ 2·0, caudæ 1·2, rostri a rictu 0·6, tarsi 0·6. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

Av. hornot. supra fusca, capite concolori, stria superciliari indistincta; subtus flavicans, gula albescentiore. (Descr. exempl. ex Turrialba, Costa Rica. Mus. nostr.)

Hab. Mexico (*Sallé*), Jalapa (*de Oca* [2]), Playa Vicente (*Boucard* [3]); Guatemala, Choctum (*O. S. & F. D. G.* [4]); Costa Rica, Turrialba and Atenas (*Carmiol* [8]); Panama, David (*Hicks* [13]), Bugaba, Cordillera del Chucu (*Arcé* [14]); line of Railway (*M'Leannan* [5 12]).—South America, Colombia [6] to Bolivia [7 11].

First described from Southern Mexico by Mr. Sclater in 1856, *Certhiola mexicana* has gradually been traced through Guatemala and the rest of Central America, and along the slopes of the Andes as far south as Bolivia. It is true that various attempts have been made to divide the birds found in this area into several races; but, with a large series before us, we feel convinced that no separation can be maintained. Its range on the continent of South America is somewhat peculiar, in that it extends in an almost straight line, not diverging at all to the eastwards, for in Venezuela a distinct species (*C. luteola*) quite takes its place.

In Guatemala *C. mexicana* has none of the habits which render the Antillean species so familiar; for we never observed it frequenting the houses as the allied species are wont to do. In Guatemala, indeed, it is by no means a widely distributed bird, being restricted in its range, so far as we know, to the tropical forests of northern Vera Paz, at an elevation of about 1200 feet above the sea. Here, however, it is common enough, judging by the number of specimens obtained for us by our native collectors.

We never obtained its nest or eggs; but Salmon, who met with both at Remedios and Medellin in the Colombian State of Antioquia, describes the former as made of fine dry grasses, and oval in shape, with a side entrance; it is usually placed at the extremity of a bough, but not suspended from it. The eggs are dirty white, thickly spotted with red-brown, especially in a zone under the larger end; they measure ·65 by ·5 [6].

2. **Certhiola caboti.** (Tab. XV. A. fig. 4.)

Certhiola caboti, Baird, Am. Nat. vii. p. 612 [1]; N. Am. B. i. p. 427 [2]; Salv. Ibis, 1874, p. 327 [3].

Supra nigricante-fusca, capite dorso concolori, uropygio et abdomine pallide flavis, superciliis elongatis, gula et speculo alari albis, caudæ rectricibus externis vix albo terminatis, rostro nigro, pedibus fuscis. Long. tota 4·5, alæ 2·25, caudæ 1·6, rostri a rictu 0·6, tarsi 0·6. (Descr. exempl. ex Cozumel, Mus. Bost. Soc. N. H.)

Hab. Mexico, island of Cozumel, off the coast of Yucatan (*Cabot* [1 2 3]).

This interesting species is only known to us from two specimens obtained in the island of Cozumel by Dr. Samuel Cabot, at the time he accompanied Stephens in his explorations of the ancient ruins of Yucatan and Central America. One of these specimens is now in the Museum of the Boston Society of Natural History, where Salvin saw it in 1874, and where a sketch of it was taken; the other, the type of Prof. Baird's description, remains in Dr. Cabot's collection. Dr. Cabot only noticed this species on Cozumel, where, however, it was quite numerous *.

The nearest ally of *C. caboti* is the Bahama species of *Certhiola*, *C. bahamensis*, from which it differs in having the yellow of the underparts more extended, the superciliary stripe less produced, the alar speculum squarer, and the tail less conspicuously tipped with whitish.

The close relationship of *C. caboti* to *C. bahamensis* is interesting, seeing that no species of *Certhiola* has as yet been discovered in the intervening island of Cuba, though hardly any other West-Indian island is without a representative of the genus.

Fam. TANAGRIDÆ †.

Subfam. *EUPHONIINÆ*.

CHLOROPHONIA.

Chlorophonia, Bonaparte, Rev. Zool. 1851, p. 137 (type *Tanagra viridis*, Vieill.); Scl. P. Z. S. 1856, p. 269.
Triglyphidia, Reichenbach, Av. Syst. Nat. t. 63.
Acrocompsa, Cabanis, J. f. Orn. 1861, p. 89.

This genus is probably hardly structurally separable from *Euphonia*, with which it has much in common. The most obvious distinction is that of the ptilosis, each feather having its barbs towards the end destitute of barbules, whereas in *Euphonia* the barbules extend to the end of the barbs; and thus the general appearance of the plumage in *Euphonia* is softer and closer than in *Chlorophonia*, which has a more wiry, coarser look. The bill of *Chlorophonia* is shaped just as in the allied genus; but is perhaps more feeble and wider towards the base. In both genera the edge of the maxilla below the nostril is expanded. At the end of the maxilla is a strong hook, and a single well developed dentate process. In *Euphonia* there are usually, but not always, several of these processes, giving a serrate edge to the maxilla. The mandible in *Chlorophonia* is somewhat swollen at the base, and upturned towards the point. The nostrils are open and at the end of the nasal fossa; the frontal plumes stiff and directed forwards. The rictal bristles are short but stout; and the tarsi short and the feet feeble.

* 'Inc. of Travel in Yucatan,' ii. p. 472.

† In the arrangement of this Family we have followed almost exactly that of the 'Nomenclator Avium Neotropicalium,' which is based upon Sclater's 'Catalogue of American Birds' and other works of the same author.

The general colour of all the species of *Chlorophonia* is a bright grass-green, and this is one of the minor characteristics of the genus.

Eight or nine species of *Chlorophonia* have been recognized, of which three (including *C. cyanodorsalis*, of which we know so little) occur within our country, all of them being peculiar to it. They are the largest members of the genus; and have been separated from the rest by Dr. Cabanis under the name of *Acrocompsa*.

Of the five or six South-American species, *C. viridis* enjoys the widest range, being found in Brazil and Bolivia as well as Ecuador; and if *C. longipennis* prove inseparable, it extends also into Colombia. In the latter country *C. pretrii* is found. *C. flavirostris*, a bird as yet known by a single specimen, is from Ecuador. The almost equally rare *C. torrejoni*, Tacz., is from North-eastern Peru. Lastly, *C. frontalis* is from Venezuela, the Sierra Nevada of Santa Marta, and from Guiana. It will thus be seen that, with the exception of *C. viridis*, all the South-American members of the genus have a very restricted range.

The same may be said of the species of Central America. *C. occipitalis* is restricted to Southern Mexico and Guatemala, and *C. callophrys* to Costa Rica and the adjoining parts of Panama. *C. cyanodorsalis* is attributed to Guatemala; but of this species we know as yet hardly anything.

1. Chlorophonia occipitalis.

Euphonia occipitalis, DuBus, Esq. Orn. t. 14[1]; Jard. Ibis, 1860, p. 103[2].

Chlorophonia occipitalis, Bp. Rev. Zool. 1851, p. 138[3]; Cassin, U.S. Astr. Exp. ii. p. 182, t. 20. f. 2[4]; Scl. P. Z. S. 1856, p. 270[5]; 1857, p. 205[6]; 1859, p. 364[7]; 1864, p. 173[8]; Cat. Am. B. p. 55[9]; Scl. & Salv. Ibis, 1859, p. 17[10]; Ex. Orn. p. 83, t. 42[11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[12]; Lawr. Bull. U.S. Nat. Mus. no. 4, p. 18[13].

Læte viridis; vertice et semitorque angusto postico cæruleis, torque pectorali nigricanti-castaneo; abdomine medio et crisso flavissimis, hypochondriis viridibus; rostro obscure corneo; pedibus corylinis. Long. tota 5·0, alæ 3·0, caudæ 1·7, tarsi 0·75.

♀ viridis; vertice et torque cervicali postico cæruleis sicut in mari sed subtus multo obscurior et torque pectorali castaneo nullo. (Descr. maris et feminæ ex Mexico. Mus. nostr.)

Av. hornot. omnino inornato, subtus sordide viridescens. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Hab. Mexico[1 3 4], Jalapa (*Sallé*[6], *de Oca*[7]), Valley of Mexico (*White*[8]), Orizaba (*Botteri*[9]), hot region of Vera Cruz (*Sumichrast*[12]), Gineta Mountains (*Sumichrast*[13]); Guatemala[2 10], Coban, Choctum (*O. S.*[9] *& F. D. G.*).

This pretty species does not seem to have been known to the earlier collectors in Mexico (Bullock, Deppe, and others), and it was not until 1847 that a female specimen placed in the Brussels Museum was described by DuBus, and figured in his 'Esquisses Ornithologiques'[1]. Since then the bird has been found from time to time in Southern Mexico, but chiefly in the State of Vera Cruz, where Sumichrast tells us it is a bird of the hot region, shifting its quarters in search of food to places elevated as high as 4000 feet above the sea. M. Boucard never seems to have met with it in the State of Oaxaca; but

in the Gineta Mountains, in the State of Chiapas, Sumichrast again found it in January 1869 [13].

In Guatemala *Chlorophonia occipitalis* is a very local bird, as we never met with it except in the neighbourhood of Coban in Vera Paz, and in the mountains to the northward of that town. Coban lies at an elevation of about 4300 feet above the sea; and in the hills, on which a small patch of virgin forest may still be seen, this bird is met with in some numbers, not a few being caught and sold as cage-birds all over the republic of Guatemala. It is a bird easily tamed, and eats fruit, especially plaintains, ravenously.

It was at one time supposed that the Guatemalan bird might be different from the Mexican, and be the lost *Chlorophonia cyanodorsalis* of Dubois; but this point was settled by the late Sir W. Jardine [2]. After comparing skins from the two countries, we are satisfied that all belong to *C. occipitalis*.

As already stated, the female of *C. occipitalis* was figured by DuBus [1]. A portrait of the male is to be found in Cassin's account of the birds obtained during Gilliss's Astronomical Expedition [4]. Both sexes were again figured by Sclater and Salvin in 'Exotic Ornithology' [11].

2. Chlorophonia callophrys.

Triglyphidia callophrys, Cab. J. f. Orn. 1860, p. 331 [1].

Acrocompsa callophrys, Cab. J. f. Orn. 1861, p. 88 [2].

Chlorophonia callophrys, Lawr. Ann. Lyc. N. Y. ix. p. 98 [3]; Scl. & Salv. Ex. Orn. p. 135, t. 68 [4]; v. Frantzius, J. f. Orn. 1869, p. 297 [5]; Salv. P. Z. S. 1870, p. 185 [6]; Boucard, P. Z. S. 1878, p. 54 [7].

♂. *C. occipitali* similis sed fronte cum superciliis elongatis aureo-flavis, et macula occipitali cærulea majore et lilacino certa luce tincta distinguendus.

♀ quoque colore maculæ occipitalis differt. (Descr. maris et feminæ ex Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica (*Hoffmann* [1]), Rancho Redondo (*Carmiol* [3]), San José (*v. Frantzius* [3]), Birris (*Zeledon* [3]), Cervantes and Candelaria (*v. Frantzius* [5]), Irazu (*Rogers*), Navarro (*Boucard* [7]); Panama, Volcan de Chiriqui [6], Chitra, Cordillera del Chucu [6], Calovevora [6], Calobre (*Arcé*).

The collection made in Costa Rica by Dr. Hoffmann, and sent to the Berlin Museum, contained the first specimen of this bird. This was described by Dr. Cabanis in his well-known paper published in 1860 [1]. In the following year he described a young bird of the same species sent by Dr. von Frantzius [2], and then took the opportunity of separating generically the three large Central-American species of *Chlorophonia* under the title of *Acrocompsa*. Since then specimens have reached most of our Museums from Costa Rica. About the year 1868 our collector, Enrique Arcé, discovered the bird at Calovevora, in the State of Panama; and in several subsequent collections forwarded by him to us we found a good series of specimens, all obtained between

Calobre and the Volcan de Chiriqui, doubtless in the highland forests. A pair of these birds were figured by Sclater and Salvin in 'Exotic Ornithology' [4].

Little has been recorded of the habits of *C. callophrys*; but Dr. v. Frantzius says that it is found during the whole year throughout the higher mountains of Costa Rica, and that it is kept in cages and fed on fruit, less for its song than for its beautiful plumage.

C. callophrys, though very like *C. occipitalis* in its general appearance, may readily be distinguished by the honey-yellow stripe which runs across the forehead and over each eye as far back as the nape. The post-cervical ring of blue is more developed, and the blue spot on the head larger, and with a lilac tinge in certain lights.

3. **Chlorophonia cyanodorsalis.**

Euphonia cyaneidorsalis, Dubois, Rev. Zool. 1859, p. 49, t. 2 [1].

"Macula læte cærulea in capite, ut in dorso, tectricibus subcaudalibusque abdomine medio crissoque flavis; supra, tectricibus alarum rectricibusque pulchra viriditate, lateribus capitis, epigastrii abdominisque paulo nitentioribus; alis caudaque infra fusco-griseis. Rostro cærulescente basi albicante; pedibus cærulescentibus." (*Dubois, ut suprà*).

Hab. Guatemala [1].

Nothing more is known of this species than the description of Dubois given above; this is accompanied by a figure representing a species which certainly seems allied to *Chlorophonia occipitalis*, but obviously differing from it in having a blue back. The specimen, which we have never seen, is said to have been sent from Guatemala.

With such scanty materials it would be rash to say much respecting this bird; but, judging from analogy, we believe the type to be a female, and that the male will prove to have a pectoral band as in the allied forms.

EUPHONIA.

Euphonia, Desmarest, Hist. Nat. des Tangaras &c. t. 19 (1805).
Phonasca, Cabanis, J. f. Orn. 1860, p. 330.

A characteristic Neotropical genus of Tanagers, containing about thirty-five species, of which eleven occur within our limits. Of these eleven, only three are also found in the South-American continent, viz.:—*E. minuta*, which spreads over the whole of the northern part of South America and enters Central America as far north as Guatemala; *E. laniirostris*, which keeps to the western side of the continent from Bolivia to Mexico; and *E. fulvicrissa*, which is only found in the northern portion of Colombia and in the State of Panama. The remaining eight species are all peculiar to Mexico and Central America. Of the eleven Central-American species no less than ten are found in Costa Rica, and but four in Southern Mexico. Guatemala has five, and the State of Panama seven. All the five Mexican and Guatemalan species are found in Costa Rica and Panama, which again have four peculiar species, as well as two of wider southern range.

As we have already said, *Euphonia* differs chiefly, if not solely, from *Chlorophonia* in the structure of its feathers and in their general colour. The two genera, however, have some remarkable characteristics, which, so far as at present known, separate them from the rest of the Tanagers.

In 1829 Lund, in a pamphlet published at Copenhagen on the genus *Euphonia*, showed that there were peculiarities in the stomach of *Euphonia* not shared by a number of other genera of Tanagers examined by him, and that the gizzard was represented in quite a rudimentary condition. The late Mr. W. A. Forbes carefully examined these birds, and in almost every respect confirmed Lund's observations. A paper was published by Forbes on this subject in the 'Proceedings of the Zoological Society' for 1880 (p. 143 *et seq.*). He also dissected *Chlorophonia*, and found the stomach to have the same peculiarities as *Euphonia*. Several other genera and several species of Tanagridæ were also examined, in which the gizzard proved to be of the normal structure.

The species of *Euphonia* have all very similar habits. They fly little, but congregate in considerable numbers in fruit-bearing trees, a species of *Ficus* in Guatemala being a very favourite resort. Here they remain most of the day, eating incessantly.

As the name implies, *Euphoniæ* are said to possess considerable powers of song. Whether from having met with them out of the breeding-season, and when they were too busy eating to sing, we never heard much of their notes.

A. *Pileus cæruleus.*

1. Euphonia elegantissima.

Pipra elegantissima, Bp. P. Z. S. 1837, p. 112 [1].

Euphonia elegantissima, DuBus, Esq. Orn. t. 8 [2]; Scl. P. Z. S. 1856, pp. 272 [3], 303 [4]; 1858, p. 303 [5]; 1859, pp. 364 [6], 378 [7]; 1864, p. 173 [8]; Scl. & Salv. Ibis, 1859, p. 16 [9]; Cab. J. f. Orn. 1860, p. 331 [10]; Lawr. Ann. Lyc. N. H. ix. p. 98 [11]; Dugès, La Nat. i. p. 140 [12]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [13]; v. Frantz. J. f. Orn. 1869, p. 297 [14]; Salv. P. Z. S. 1870, p. 185 [15].

Euphone tibicen, Licht. Preis Verz. Mex., Vög. p. 2 (cf. J. f. Orn. 1863, p. 56)[16].

Euphonia cœlestis, Less. Rev. Zool. 1839, p. 42 [17].

Pipra galericulata, Giraud, B. Texas, No. 10, t. 5. f. 2 [18].

Purpurascente nigra; pileo et nucha cæruleis, fronte saturate castanea, postico nigro marginato; loris, genis et gula nigris, corpore reliquo subtus castaneo, pectore saturatiore; alis extus nigris, intus albidis, subalaribus flavis, cauda nigra immaculata; rostro nigro, pedibus corylinis. Long. tota 4·3, alæ 2·7, caudæ 1·6, rostri a rictu 0·4, tarsi 0·55. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

♀ olivacea; pileo et nucha cæruleis, fronte sicut in mare, subtus cum genis olivaceo-flavida, gula fulvo tincta. (Descr. feminæ ex Calovevora, Panama. Mus. nostr.)

Hab. North America, Texas (?) [18].—Mexico [1 17], Guanajuato (*Dugès* [12]), valley of Mexico (*White* [8], *le Strange*), hot, temperate, and alpine regions of Vera Cruz (*Sumichrast* [13]), Jalapa (*Deppe* [16], *de Oca* [6]), La Parada [5] and Juquila [7] (*Boucard*), San Pedro (*DuBus* [2]), Oaxaca (*Fenochio*); Guatemala, Cuyotenango, above Antigua, Calderas, Santa Barbara in Vera Paz, Coban, Choctum (*O. S. & F. D. G.*); Costa

Rica, San José (*v. Frantzius* [11]), Volcan de Irazu (*Arcé*, *Rogers*), Turrialba (*Arcé*); Panama, Calovevora (*Arcé* [15]).

This pretty species is the only Mexican and Central-American representative of a group of six blue-headed Euphoniæ, which are spread over a large portion of South America and are found in some of the West-Indian islands. The best known of these is *Euphonia nigricollis*, which ranges from Colombia to Paraguay.

Euphonia elegantissima was described by Bonaparte in 1837, from Mexican specimens supplied him by the Messrs. Paris. Examples had, however, been previously sent by Deppe from Jalapa in Mexico to the Berlin Museum, and received from Lichtenstein the name of *Euphone tibicen*, but, unfortunately, no description whatever was given of them. Lesson also gave it the name of *E. cœlestis*, describing specimens of both sexes from Mexico [17].

It is now a well-known species in all the mountainous districts between Central Mexico and the State of Panama. According to our experience, it is never found at any great distance from the higher ranges in which it chiefly resides. Sumichrast speaks of having found it at all heights up to 6500 feet in the mountains of Orizaba. He says that it is more of a vagrant than other Euphoniæ, wandering in search of fruits, upon which it feeds. In Guatemala we observed it as high as 8000 feet in the ridge above the hacienda of Calderas, on the slopes of the Volcan de Fuego. We also observed it as low as Cuyotenango, in the Pacific coast-region, some 1500 feet above the sea, and at Choctum, in Vera Paz, of not more than 1200 feet elevation. Its habits, like those of its congeners, are to remain all day in some tree the fruit of which is ripe, on which it feeds incessantly.

The eggs of this species taken by M. Boucard at Juquila [7] are described as rounded in shape, of a creamy white, with a few scattered spots and blotches, principally at the larger end, of two shades of brown.

Euphonia elegantissima is retained in the lists of North-American birds on the strength of Giraud having included it as one of his sixteen birds of Texas. Its range so far north, however, requires confirmation. We have no positive tidings of it beyond Guanajuato, where Dr. Dugès observed it.

B. *Pileus plus minusve luteus.*

a. *Crissum aut luteum aut album.*

a'. *Subtus gula cæruleo-nigra.*

2. Euphonia affinis.

Tanagra (*Euphonia*) *affinis*, Less. Rev. Zool. 1842, p. 175 [1].

Euphonia affinis, Scl. P. Z. S. 1856, pp. 274 [2], 303 [3]; Scl. & Salv. Ibis, 1859, p. 16 [4]; 1860, p. 33 [5]; Lawr. Ann. Lyc. N. Y. ix. pp. 98 [6], 200 [7]; Mem. Bost. Soc. N. H. ii. p. 273 [8]; Bull. U.S. Nat. Mus. no. 4, p. 18 [9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [10].

Phonasca affinis, Cab. J. f. Orn. 1860, p. 332 [11].

Atro-cærulea, capite et gutture paulo purpurascentioribus; fronte anguste nigra, pilei dimidio antico usque ad oculorum extremum et abdomine toto cum crisso luteis, alis subtus albis; cauda nigra rectricibus duabus utrinque externis macula magna (apicem haud attingente), in pogonio interno alba; rostro et pedibus obscure plumbeis. Long. tota 4·0, alæ 2·1, caudæ 1·35, rostri a rictu 0·4, tarsi 0·55.

♀ supra olivascens, pileo postico et dorso antico cinereo tinctis, subtus sordide flavicans, abdomine medio clariore. (Descr. maris et feminæ ex Retalhuleu, Guatemala. Mus. nostr.)

Hab. MEXICO, Mazatlan (*Bischoff* [8]), Sierra Madre (*Xantus* [8]), Orizaba (*Sallé* [3], *Botteri* [2]), hot region of Vera Cruz (*Sumichrast* [10]), Tierra Caliente of the Atlantic side (*le Strange*), Barrio and Tehuantepec city (*Sumichrast* [9]), Merida in Yucatan (*Schott* [7], *Gaumer*); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA [4], Retalhuleu, Escuintla, Savana Grande, Dueñas, Calderas (*O. S. & F. D. G.*), Coban (*Sarg*); NICARAGUA, Realejo (*A. Lesson* [1]); COSTA RICA, San José (*Hoffmann* [11]), San Juan (*v. Frantzius* [6]).

Euphonia affinis is the Central-American representative of the widely-ranging South-American *E. chlorotica*, and differs from that bird in the yellow of the underparts being of a somewhat paler tint, and in the colour of the back being devoid of the purple hue present in the latter bird.

It was first described by Lesson from specimens said to have been obtained at Realejo in Nicaragua [1], whence it has since been traced northwards as far as Mazatlan in Mexico, and southwards to Costa Rica. We should say, however, that it is more abundantly distributed over the districts of Mexico and Guatemala which border the Pacific Ocean than elsewhere, though not confined in its range to these parts. In altitude *E. affinis* is found at very varied elevations, for in September 1862 we met with it in abundance at Retalhuleu, at an elevation of about 800 feet, and in the same month in 1873 Salvin shot specimens at Calderas in the Volcan de Fuego, at an elevation of 7300 feet above the sea. At Dueñas it was observed at various times between the months of July and November. Its presence in any locality is doubtless determined by the ripeness of some favourite fruit, such a one at Dueñas being a species of *Ficus*, bearing a small sweet fruit much loved by *Euphonia affinis*. One of these trees near Dueñas, frequently visited by us during its time of fruit, was always full of these birds, which remained all day feasting without ceasing.

In Northern Yucatan this *Euphonia* is common, and we have a single specimen from the vicinity of Belize. In Vera Paz, however, it seems by no means abundant, as we have no specimens ourselves from there.

In Costa Rica, too, it would appear to be comparatively rare, as no examples have reached us, and the only ones on record are those of Drs. Hoffmann and v. Frantzius [11].

3. **Euphonia minuta.**

Euphonia minuta, Cab. in Schomb. Reise n. Guiana, iii. p. 671 [1]; Scl. P. Z. S. 1856, p. 274 [2]; Ibis, 1873, p. 373 [3]; Scl. & Salv. Ibis, 1860, p. 275 [4]; P. Z. S. 1879, p. 498 [5]; Lawr. Ann. Lyc. N. Y. vii. p. 332 [6]; Salv. P. Z. S. 1870, p. 186 [7]; Cat. Strickl. Coll. p. 180 [8]; Pelz. Orn. Bras. p. 203 [9].

Euphonia strictifrons, Strickl. Contr. Orn. 1851, p. 72 [10].
Euphonia pumila, Bp. Rev. Zool. 1851, p. 136 [11].
Phonasca humilis, Cab. J. f. Orn. 1860, p. 334 [12].
Acroleptes humilis, Cab. J. f. Orn. 1861, p. 89 [13].
Euphonia humilis, Lawr. Ann. Lyc. N. Y. ix. p. 98 [14]; v. Frantz. J. f. Orn. 1869, p. 297 [15].

Nitens cæruleo-nigra; capite purpurascentiore, pilco antico usque ad oculos et abdomine toto luteis, fronte angustissime et loris nigris, gula capite concolori, crisso et rectricibus utrinque externis macula magna in pogonio externo (apicem haud attingente) albis, subalaribus quoque albis; rostro nigro, mandibula basi plumbescente; pedibus obscure plumbeis. Long. tota 3·3, alæ 2·0, caudæ 1·15, rostri a rictu 0·4, tarsi 0·5. (Descr. maris ex Calovevora, Panama. Mus. nostr.)

♀ (an ♂ juv.) olivacea; subtus pallidior, gula cinerascente-olivacea, abdomine medio et crisso pallide cinereis. (Descr. feminæ ex Chiriqui, Panama. Mus. nostr.)

Hab. Guatemala, Coban (*O. S.* [4]); Nicaragua, Chontales (*Belt* [3]); Costa Rica (*v. Frantzius* [12 15]); Panama, Chiriqui, Bugaba [7], Calovevora [7] (*Arcé*), line of Railway (*M'Leannan* [6]).—South America, Colombia [2 5 11] to Guiana [8 10 11] and Amazonia [9].

The name *Phonasca humilis*, proposed by Dr. Cabanis for the Costa-Rica bird of this form, was based upon a young male specimen which is said to have the characters of *E. minuta*, but to be much larger. We do not possess Costa-Rican examples of this bird; but we have a fair series from other parts of Central America, from Guatemala to Panama, and others from various parts of South America, including Guiana, the home of the typical *E. minuta*. We notice a slight difference in size between the Guiana birds and those from other places, the former having a wing averaging about one tenth of an inch shorter; but, failing other differences, we do not consider this any ground for dividing the species. It must be remarked, however, that the bird we have described as the female or young male has rather less cinereous on the throat and belly than true females collected by Whitely in British Guiana; the difference is not of much importance.

The names *E. strictifrons* proposed by Strickland and *E. pumila* by Bonaparte, in the year 1851, both apply to *E. minuta*, as Mr. Sclater has long ago shown [2].

The obvious diagnostic character of *E. minuta* is its white crissum; this is only shared in the whole genus by *E. annæ*, a species at once separable by its rufous head.

In Guatemala *E. minuta* appears to be a rare bird, as only one other specimen has reached us from there since the single male example was obtained by Salvin at Coban in November 1859. In Nicaragua Belt secured only one specimen; but from various points of the State of Panama we have received skins of both sexes from our excellent collector Arcé.

4. **Euphonia gracilis.** (Tab. XVI. fig. 3.)

Phonasca gracilis, Cab. J. f. Orn. 1860, p. 333 [1].
Euphonia gracilis, Scl. Cat. Am. B. p. 359 [2]; Lawr. Ann. Lyc. N. Y. ix. p. 98 [3]; v. Frantzius, J. f. Orn. 1869, p. 297 [4]; Salv. P. Z. S. 1870, p. 186 [5].

Nitens cæruleo-nigra fere unicolor; pileo antico usque ad oculorum medium et abdomine toto luteis; alis subtus albis; cauda omnino nigra; rostro et pedibus obscure plumbeis. Long. tota 4·0, alæ 2·3, caudæ 1·3, rostri a rictu 0·45, tarsi 0·6. (Descr. maris ex Volcan de Chiriqui. Mus. nostr.)

♀ supra olivacea, subtus multo pallidior, ventre medio flavicante. (Descr. feminæ ex Costa Rica. Mus. P. L. Sclater.)

Hab. Costa Rica, San José (*Hoffmann*), San José (*Carmiol* [3], *v. Frantzius* [4]); Panama, Volcan de Chiriqui, Bugaba (*Arcé* [5]).

Little has been recorded of this species. It was described by Dr. Cabanis from specimens obtained near San José, Costa Rica, by Dr. Hoffmann; but the adult male was not represented in this collection. It has since been secured by Arcé in the Volcan de Chiriqui, and one of his specimens is now figured.

In general coloration *E. gracilis* is like *E. affinis*; but it may be at once distinguished by its wholly black tail, and by the steel-blue black throat-mark being more extensive and reaching quite to the breast. *E. luteicapilla* has also a black tail, but the yellow of the crown is more extensive, reaching to the nape. *E. minuta*, again, is characterized by its white crissum.

5. **Euphonia luteicapilla.** (Tab. XVI. fig. 1.)

Phonasca luteicapilla, Cab. J. f. Orn. 1860, p. 332 [1].

Euphonia luteicapilla, Lawr. Ann. Lyc. N. Y. ix. p. 98 [2]; v. Frantzius, J. f. Orn. 1869, p. 297 [3]; Salv. P. Z. S. 1870, p. 186 [4].

Nitens cæruleo-nigra; alis et cauda viride æneo nitentibus hac immaculata, fronte angustissime et loris nigris, capitis lateribus et gula dorso concoloribus, subalaribus albis; pileo toto et abdomine luteis; rostri maxilla cornea ad basin et mandibula (præter apicem) pallidis; pedibus obscure corylinis. Long. tota 3·5, alæ 2·15, caudæ 1·3, rostri a rictu 0·3, tarsi 0·5. (Descr. maris ex Bugaba, Panama. Mus. nostr.)

♀ supra olivacea, alis caudaque fusco-nigris extus olivaceo limbatis; subtus flavida, medialiter clarior, hypochondriis olivacea indutis. (Descr. feminæ ex Chepo, Panama. Mus. nostr.)

Hab. Costa Rica (*v. Frantzius* [1]), San José (*v. Frantzius* [3]), Turrialba (*Carmiol*); Panama, Volcan de Chiriqui, Bugaba [4], Boquete de Chitra [4], Cordillera del Chucu (*Arcé*), Paraiso Station, Panama Railway (*Hughes* [4]), Chepo (*Arcé*).

We possess a good series of specimens of a *Euphonia* from the State of Panama, which we believe to be this species, but from Costa Rica we have only a single female or young male example. None of the adult males from Panama have a white spot on the inner web of the outer rectrix, and in this respect differ from Dr. Cabanis's description; but as he says that this spot is small and sometimes absent, its importance is not great.

The yellow crown at once distinguishes this species from all its allies; this not only occupies the anterior portion of the crown, but spreads backwards to the nape.

We have figured one of the Panama specimens from Bugaba; and here as well as in the rest of the State as far south as Chepo *E. luteicapilla* appears to be spread.

M'Leannan did not meet with it on the Panama Railway, but we have a pair shot by Mr. Hughes at Paraiso Station. At Chepo Arcé only obtained us a single female specimen, but we have no hesitation in referring it to this species.

b'. *Subtus omnino lutea.*

6. Euphonia hirundinacea.

Euphonia hirundinacea, Bp. P. Z. S. 1837, p. 117 [1]; Scl. P. Z. S. 1854, p. 98 (partim) [2]; 1856, pp. 278 [3], 303 [4]; 1859, pp. 364 [5], 378 [6]; Scl. & Salv. Ibis, 1859, p. 16 [7]; P. Z. S. 1870, p. 836 [8]; Lawr. Ann. Lyc. N. Y. ix. p. 98 [9]; Bull. U.S. Nat. Mus. no. 4, p. 18 [10]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [11]; Salv. Cat. Strickl. Coll. p. 180 [12].

Phonasca hirundinacea, Cab. J. f. Orn. 1860, p. 334 [13]; 1861, p. 91 [14].

Supra nitens cæruleo-nigra, loris et capitis lateribus dorso concoloribus; fronte et pileo ad oculorum medium et corpore subtus a mento usque ad crissum luteis; cauda nigra, rectricibus duabus utrinque externis macula magna in pogonio interno et apicem attingente albis; rostro nigro; pedibus plumbeis. Long. tota 4·0, alæ 2·5, caudæ 1·45, rostri a rictu 0·45, tarsi 0·6. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ supra olivacea, alis et cauda fusco-nigris extus olivaceo marginatis; subtus griseo-albida, abdomine medio pallidiore, hypochondriis olivaceo-flavis. (Descr. feminæ ex Vera Paz. Mus. nostr.)

Hab. Mexico, Cordova (*Sallé* [4]), Jalapa (*de Oca* [5]), Playa Vicente (*Boucard* [6]), hot region of Vera Cruz (*Sumichrast* [11]), Tierra caliente of Atlantic side (*le Strange*), Guichicovi (*Sumichrast* [11]), Northern Yucatan (*Gaumer*); British Honduras, Belize (*Blancaneux*), Corosal (*Roe*); Guatemala (*Velasquez de Leon* [1], *Constancia* [3 12]), Poctun, Choctum, Coban, Cahabon (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [8]); Nicaragua, Hato Viejo (*Baxter*); Costa Rica [13], Turrialba (*Carmiol* [9], *Arcé*), San Juan (*v. Frantzius* [9]).

Owing to Bonaparte having described a young male of this species a good deal of discussion has arisen respecting it; but Mr. Sclater's determination of Bonaparte's bird and his fuller description have considerably lessened the difficulties surrounding its proper title. We are unable, however, to follow Mr. Sclater in his definition of the range of *E. hirundinacea*, a bird which we have not been able to trace beyond Costa Rica. The State of Panama and Colombia, though both are included by Mr. Sclater within the range of *E. hirundinacea*, appear, from the evidence before us, to be occupied by *E. laniirostris* to the exclusion of the allied species. Then, again, the bird figured in the 'Proceedings' of the Zoological Society for 1854 [2] as the male of *E. hirundinacea* is, we feel sure, that sex of *E. laniirostris*, as indeed Mr. Sclater himself subsequently admitted. The drawing was probably taken from Captain Kellett's Chiriqui example.

Though *E. hirundinacea* is very like *F. laniirostris*, they may be readily recognized from one another, the male of the former having less yellow on the head, and the white of the inner web of the outer tail-feathers continuing further to the end of the feather. The female of *E. hirundinacea* has the whole of the middle of the underparts greyish white, whereas this part in *E. laniirostris* is yellowish olive.

Euphonia hirundinacea is an inhabitant of the low-lying hot districts wherever it is found, and seldom appears to ascend the mountains higher than about 2000 or 3000 feet. In such hot situations Sumichrast met with it [10] [11]; and in Guatemala its range seems thus restricted, though we have noted its occurrence near Coban, the elevation of which is over 4000 feet.

7. **Euphonia gnatho.**

Phonasca gnatho, Cab. J. f. Orn. 1860, p. 335 [1].
Euphonia gnatho, Lawr. Ann. Lyc. N. Y. ix. p. 98 [2].

E. hirundinaceæ persimilis sed rostro multo robustiore forsan distinguenda. (Descr. exampl. ex Tempate, Costa Rica. Mus. nostr.)

Hab. Costa Rica (*v. Frantzius* [1]), Tempate, Nicoya (*Arcé*).

Dr. Cabanis described this species from a single specimen sent in Dr. von Frantzius's first collection from Costa Rica, comparing it with *E. chalybea* of Brazil, especially as regards the size of the bill, which he characterized as "rostro nigro, crasso, culmine valde incurvato."

We possess a specimen having a bill of this description, but we much doubt it really signifies that a third species distinct from *E. hirundinacea* and *E. laniirostris* exists in Costa Rica. With the former of these birds, the example alluded to agrees in every respect except in the greater development of the bill; and we doubt if this difference, taken alone, is of specific value, especially as the true *E. hirundinacea* also undoubtedly occurs in Costa Rica.

The peculiarity of the bill may be produced by the harder nature of the food upon which the bird feeds in the districts where it is found. Some of the Costa-Rica specimens of *E. hirundinacea* vary to a slight extent in the size of their bills, showing that it is not at all improbable that the extreme form of *E. gnatho* may be reached by gradual steps.

On the whole we think it best to allow *E. gnatho* to stand as distinct from *E. hirundinacea* until a better series of specimens confirms it in this position, or shows the name to be a synonym of *E. hirundinacea.*

8. **Euphonia laniirostris.**

Euphonia laniirostris, d' Orb. & Lafr. Syn. Av. i. p. 30 [1]; d'Orb. Voy. Am. mér., Ois. p. 266, t. 22. f. 1 [2]; Salv. & Godm. Ibis, 1879, p. 199 [3]; Scl. & Salv. P. Z. S. 1879, p. 598 [4]; Salv. Cat. Strickl. Coll. p. 180 [5].
Euphonia crassirostris, Scl. P. Z. S. 1856, p. 277 [6]; Scl. & Salv. P. Z. S. 1864, p. 349 [7]; Lawr. Ann. Lyc. N. Y. viii. p. 174 [8]; Salv. P. Z. S. 1870, p. 186 [9]; Tacz. P. Z. S. 1877, p. 320 [10].
Euphonia hirundinacea, Lawr. Ann. Lyc. N. Y. vii. p. 298 [11].
Euphonia, sp. ?, Salv. P. Z. S. 1867, p. 138 [12].

E. hirundinaceæ similis sed macula pilei flava majore et postice rotundata, maculis quoque caudæ rectricum

duarum externarum albis postice rotundatis haud plumæ apicem attingentibus; femina quoque subtus omnino olivaceo flavida haud medialiter cinerea distinguenda.

Hab. Costa Rica, Angostura (*Carmiol*); Panama, Volcan de Chiriqui, Bugaba (*Arcé*), David (*Hicks* [8]), Chitra [9], Boquete de Chitra [9], Calovevora [9], Cordillera de Tolé [12] (*Arcé*), Lion-Hill Station (*M'Leannan* [7 11]), Paraiso Station (*Hughes*).—South America, to Colombia [6 3], Ecuador, Peru [10], and Bolivia [1 2 3 4 5].

The gradual extension of our series of specimens of this *Euphonia* has convinced us that Mr. Sclater's name *E. crassirostris*, which was founded on Colombian skins [6], is really a synonym of d'Orbigny's title *E. laniirostris*, and that the bird ranges uninterruptedly from Bolivia to Costa Rica. From this latter country, however, we have only a single female skin to show its presence there. In the State of Panama it is abundant, and quite supplants *Euphonia hirundinacea*, its more northern representative.

Like *E. hirundinacea* this species is an inhabitant of low-lying hot districts, but Mr. Simons observed it in the Sierra Nevada of Santa Marta as high as 2700 feet above the sea [3].

b. *Crissum castaneum.*

9. **Euphonia gouldi.**

Euphonia, sp., Scl. P. Z. S. 1856, p. 303 [1].

Euphonia gouldi, Scl. P. Z. S. 1857, p. 66, t. 124 [2], p. 229 [3]; Scl. & Salv. Ibis, 1859, p. 17 [4]; Lawr. Ann. Lyc. N. Y. ix. p. 98 [5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [6]; Salv. Ibis, 1860, p. 194 [7]; 1872, p. 315 [8]; v. Frantz. J. f. Orn. 1869, p. 298 [9].

Supra æneo-olivacea, fronte et pileo usque ad oculos luteis, loris olivaceo-nigris, subtus gula et cervicis lateribus olivaceis, ventre medio et crisso læte castaneis, hypochondriis olivaceis flavo intermixtis, rostro nigro, pedibus obscure corylinis. Long. tota 4·0, alæ 2·2, caudæ 1·2, rostri a rictu 4·5, tarsi 0·65.

♀ supra mari similis, fronte et pileo antico castaneis, subtus olivacea, ventre medio flavescentiore, crisso sicut in mari castaneo. (Descr. maris et feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico (*Sallé* [1]), Santecomapan (*Boucard* [3]), hot region of Vera Cruz (*Sumichrast* [6]); British Honduras, Belize (*Blancaneaux*); Guatemala [2] (*Skinner* [4]), Coban [7], Choctum, and Kamkhal (*O. S. & F. D. G.*); Nicaragua, Mosquito coast (*Bell* [3]), Chontales (*Belt* [8]); Costa Rica, Angostura [5 9], Pacuar [5 9], Dota Mountains [5 9], Valza (*Carmiol, v. Frantzius*), Tucurriqui (*v. Frantzius* [9]).

As will be seen above, this pretty species enjoys a wide range throughout our region, from Southern Mexico to Costa Rica. In the State of Panama, in the rest of the isthmus, and in the northern parts of Colombia, its place seems to be taken by *E. fulvicrissa*, the female of which much resembles that of the present bird, but the male has the upper parts of the steel-blue colour so prevalent in this genus; both sexes, however, in *E. gouldi* and in *E. fulvicrissa* have the crissum of a light chestnut or tawny colour.

Euphonia gouldi first came into Mr. Sclater's possession in 1856, a specimen being

in M. Sallé's Mexican collection. He did not describe it, however, till the following year, when Mr. Gould submitted to him specimens of both sexes from Guatemala, whence they had doubtless been obtained through the instrumentality of the late G. U. Skinner. We subsequently secured a good series of examples from the same country, where, however, its range is limited to the forest-region of Northern Vera Paz, and thence into British Honduras. Its range in elevation is usually from the sea-level to a height of about 1200 feet; but one of our specimens came from the neighbourhood of Coban [7], that is over 4000 feet above the sea. Sumichrast, too, speaks of it as an inhabitant of the hot districts of Vera Cruz, and up to an elevation of 1600 feet.

10. **Euphonia fulvicrissa.** (Tab. XVI. fig. 2.)

Euphonia fulvicrissa, Scl. P. Z. S. 1856, p. 276 [1]; Cass. Pr. Ac. Phil. 1860, p. 143 [2]; Scl. & Salv. P. Z. S. 1864, p. 349 [3]; 1879, p. 498 [4].

Euphonia gouldi, Lawr. Ann. Lyc. N. Y. vii. p. 332 [5] (nec Sclater); Salv. P. Z. S. 1870, p. 186 [6].

Supra nitens cæruleo-nigra, fronte usque ad oculorum extremum lutea, gutture ad medium pectus dorso concolore, ventre medio et crisso fulvo-nigris hoc saturatiore; cauda nigra, rectrice una utrinque externa in pogonio interno alba; rostro et pedibus plumbeo-nigris. Long. tota 3·2, alæ 2·1, caudæ 1·1, rostri a rictu 0·45, tarsi 0·5.

♀ supra olivacea, æneo tincta; fronte anguste rufa; subtus olivaceo-flava medialiter flavidior, crisso fulvescenti-flavo. (Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Hab. Panama, Bugaba, Volcan de Chiriqui (*Arcé* [6]), Lion Hill Station (*M'Leannan* [3 5]), San Pablo Station (*O. S.*), Falls of the Truando (*Wood* [2]).—Colombia [1 4].

A species with a very limited range, of which a male specimen first came into Mr. Sclater's hands from Santa Marta in Northern Colombia, and formed the subject of his description [1]. The only other point on the continent of South America where it has occurred is a little further south, in the valley of the Magdalena river and its affluents, Salmon having found it at Remedios and Nichi, both in the State of Antioquia. On the isthmus, Mr. Wood observed it at the Falls of the river Truando, an affluent of the Atrato, during Lieut. Michler's Exploring Expedition in the isthmus of Darien. Here it frequented high trees near an encampment in the mountains, but was not often seen, being shy and watchful [2]. At Panama it appears to be more abundant, as M'Leannan not only supplied us with specimens of both sexes, but sent others to Mr. Lawrence. Moreover, Salvin himself shot a male at San Pablo Station near to where the railway-bridge crosses the river Chagres. Mr. Lawrence, in his paper on M'Leannan's birds, called his specimens *Euphonia gouldi*, as was ascertained by Salvin in 1874 when examining Mr. Lawrence's collection. Salvin himself also made the same mistake when determining two female specimens sent by Arcé from the neighbourhood of Chiriqui. These were called *E. gouldi* [6] instead of *E. fulvicrissa*, which they now prove to be. These specimens give the extreme range of the species in this direction. In Costa Rica *E. gouldi* alone is found.

We have figured one of the Panama specimens from Lion-Hill Station.

Euphonia fulvicrissa may be known from all its Central-American congeners except *E. gouldi* by its tawny-rufous belly and crissum. From *E. gouldi* again it may easily be recognized by its steel-blue back, that part of the allied species being brassy olive. The females are not so easily determined, but that of *E. fulvicrissa* has more chestnut on the lower abdomen, the forehead is rather paler chestnut, and there is a slight bluish shade on the upper parts.

c. *Pileus rufus.*

11. Euphonia annæ.

Euphonia anneæ, Cassin, Pr. Ac. Phil. 1865, p. 172[1]; Salv. P. Z. S. 1867, p. 137[2]; 1870, p. 186[3]; Ibis, 1873, p. 329[4]; Lawr. Ann. Lyc. N. Y. ix. p. 98[5]; v. Frantz. J. f. Orn. 1869, p. 297[6].

Euphonia rufivertex, Salv. P. Z. S. 1866, p. 71, t. 7[7].

Atro-purpurascens nitens; pileo toto et fronte rufo-castaneis; loris, capitis lateribus et gula purpurascente nigris; subtus lutea, subalaribus et crisso albis; cauda nigra, rectricibus duabus utrinque externis macula in pogonio interno alba; rostro et pedibus fusco-nigris. Long. tota 4·5, alæ 2·5, caudæ 1·5, rostri a rictu 0·5, tarsi 0·68. (Descr. maris ex Angostura, Costa Rica. Mus. nostr.)

♀ supra olivacea, nucha plumbea, pileo antico et fronte rufescente tinctis; subtus sordide cinerea, hypochondriis olivaceis. (Descr. feminæ ex Calovevora, Panama. Mus. nostr.)

Hab. Costa Rica, Angostura[5] and Santa Rosa[1 5] (*Carmiol*), Turrialba (*Arcé*[7]); Panama, Veraguas (*Merritt*[4]), Santa Fé[2 7], Santiago de Veraguas[7], Calobre, Calovevora[3], and Cordillera del Chucu[3] (*Arcé*).

Though the late Mr. Cassin, of Philadelphia, first described this *Euphonia* from Costa-Rican specimens belonging to the Smithsonian Institution[1], the first examples obtained were those of Dr. Merritt, who visited Veraguas in 1852[3]. Shortly after Cassin's description was published; but, in ignorance of this fact[2], Salvin also named the bird from specimens in our collection which had been sent us by Arcé from the State of Panama[7]. We have since obtained adult examples from both countries, and, as might be expected, there can be no doubt of the identity of the two birds.

The only species of *Euphonia* at all nearly allied to *E. annæ* is the South-American *E. ruficeps*, a bird originally described by d'Orbigny and Lafresnaye from Bolivian examples, but since traced through the upper basin of the Amazons to Venezuela.

From this species *E. annæ* differs in having a white crissum instead of a tawny one; the head also is of a paler rufous, which extends over the whole crown instead of only the anterior portion.

E. annæ appears to be not uncommon in the neighbourhood of the higher mountainous parts of Costa Rica and the State of Panama, but it is absent from the low-lying country through which the Panama railway runs.

Both male and female are figured in the 'Proceedings of the Zoological Society' for 1866, under the name of *Euphonia rufivertex*[7].

Subfam. *TANAGRINÆ.*

CALLISTE.

Calliste, Boie, Isis, 1826, p. 974 (type *Tanagra tricolor*, Gm.); Scl. P. Z. S. 1856, p. 244, et Mon. Call. (1857).

Mr. Sclater has made the study of the genus *Calliste* so peculiarly his own that, in our account of the fragment of the group occurring within our fauna, we have followed almost exactly his treatment of the subject. Not only has Mr. Sclater published an illustrated monograph of the genus, but he has also, from time to time, given a short summary of our increase of knowledge since that monograph was finished. These recapitulations are to be found in 'The Ibis' for the years 1863, 1868, and 1876. In the last of these the number of known species of *Calliste* is stated to be sixty. Since then Mr. Lawrence has described one from the island of St. Vincent as *C. versicolor*, and Herr v. Pelzeln another from Brazil as *C. albertinæ*; so that sixty-two species represent the specific strength of the genus according to our present knowledge. Of these, nine occur within our region. Four of these are peculiar to it, not having as yet been found outside our limits. Three do not pass far into the southern continent, whilst the remaining two are of wider range, *C. guttata* reaching Guiana and *C. gyroloides* Bolivia.

The genus *Calliste* originally formed part of *Tanagra* of Linnæus until it was separated by Boie in 1826; since then it has been further split into a number of genera, chiefly by Bonaparte in 1851 (Rev. Zool. p. 142). Mr. Sclater has adopted many of these names as sectional headings; and this we believe their best use; for though the diversity in the coloration of the members of the genus taken as a whole is very great, the genus itself is, notwithstanding, structurally very uniform. Viewing the nine Central-American species by themselves, no difficulty whatever arises in distinguishing them; but it may be as well to point out to which of the sections they severally belong. Thus:—

C. florida is the sole representative of *Calliste*.
C. guttata „ „ *Ixothraupis*.
C. icterocephala „ „ *Chrysothraupis*.
C. gyroloides, *C. laviniæ* } represent *Gyrola*.
C. cabanisi, *C. dowi*, *C. inornata*, *C. larvata* } „ *Procnopis*.

The last named is the least uniform of these groups.

The bill in *Calliste* is straight, rather short, and slender; the culmen curved down-

wards, and the gonys slightly upwards; the maxilla has a single subterminal notch. The wings are rather long, the second, third, and fourth primaries being the longest in the wing. The feathers of the plumage generally have the barbs bare at the ends, as in *Chlorophonia*; and to the structure and colour of this part of the feather the peculiar metallic lustre of the plumage is due. The feet are feeble and the tarsi short, in accordance with the strictly arboreal habits of the birds; but of these but little has been recorded. Salmon obtained the eggs of three species in the State of Antioquia, viz. *C. vitriolina*, *C. atricapilla*, and *C. nigriviridis*, all of which resemble one another in being of a pale greenish ground, blotched with lilac or red-brown marks, especially in a zone round the larger end. The nest of *C. vitriolina* is open, and made outwardly of moss, and lined with fine roots, fibres, and horsehair.

The food of *Calliste* is usually fruit and occasionally insects.

1. **Calliste florida.** (Tab. XVII. fig. 1.)

Calliste florida, Scl. & Salv. P. Z .S. 1869, p. 416, t. 28 [1]; Scl. Ibis, 1876, p. 409 [2].

Læte viridis, pileo et uropygio aurulento lavatis; interscapulio nigro variegato; alis nigris, secundariis et tectricibus omnibus viridi marginatis; cauda nigra, rectricibus intermediis extus cærulescenti-viridi late marginatis; loris et regione parotica nigris; ventre medio et crisso flavicantibus, subalaribus albis; rostro et pedibus nigris. Long. tota 5·0, alæ 2·6, caudæ 1·7, rostri a rictu 5·5, tarsi 0·3. (Descr. exempl. ex Veraguas, Panama. Mus. nostr.)

♀ mari omnino similis, sed nucha et dorso postico minus aurulento suffusis. (Descr. exempl. typ. ex Costa Rica. Mus. nostr.)

Hab. Costa Rica (*Carmiol* [1]); Panama, Veraguas (*Arcé* [2]).

This *Calliste*, of which very few specimens have as yet come under our notice, was first sent to us by Carmiol from Costa Rica in 1869, a single female specimen being in a collection forwarded to us by him at that time. The exact spot in Costa Rica where this example was obtained was not recorded. Since then other specimens have reached us from Arcé, who most probably found them in the neighbourhood of Santiago de Veraguas, or nearer to the town of Panama. Amongst these latter is the male specimen now figured.

The only species of *Calliste* which at all resembles *C. florida* is *C. schranki*, a species of wide range on the eastern slopes of the Andes, between Ecuador and Bolivia, and throughout the basin of the Upper Amazons. From this bird *C. florida* differs in having the forehead coloured like the top of the head instead of being black, and in the underparts being green instead of yellow.

2. **Calliste guttata.**

Callispiza guttata, Cab. Mus. Hein. i. p. 26 [1].

Calliste guttata, Scl. P. Z. S. 1856, p. 249 [2]; Mon. Call. p. 21, t. 10 [3]; Cat. Am. B. p. 64 [4]; Lawr Ann. Lyc. N. Y. ix. p. 98 [5]; v. Frantz. J. f. Orn. 1869, p. 298 [6]; Salv. P. Z. S. 1870, p. 187 [7]; Wyatt, Ibis, 1871, p. 325 [8].

Calliste chrysophrys, Scl. Contr. Orn. 1851, p. 24, t. 69. f. 2, & p. 54[9].

Calliste guttulata, Bp. Compt. Rend. xxxii. p. 76[10].

Spotted Emerald Tanager, Lath. Gen. Hist. Birds, vi. p. 19.

Supra aurescenti-viridis, capitis totius et dorsi antice plumis medialiter nigris, viridi marginatis, fronte et regione oculari aureis, loris nigris ; alis et cauda fusco-nigris, hac viridi, illis cærulescenti-viridi marginatis, subtus alba cærulescente tincta et guttis rotundis præcipue in pectore perfusa, maculis his in gula minoribus ; hypochondriis et crisso flavo-virescentibus ; rostro nigricante, pedibus obscure corylinis. Long. tota 4·5, alæ 2·5, caudæ 1·8, rostri a rictu 0·5, tarsi 0·75. (Descr. maris ex Tucurriqui, Costa Rica. Mus. nostr.)

♀ mari similis, sed coloribus minus claris.

Hab. Costa Rica, Tucurriqui (*Arcê*), Angostura [5], Dota [5] (*Carmiol*), Turrialba (*Cooper*) ; Panama, Volcan de Chiriqui (*Arcé* [7]).—South America, from Colombia [2 8] to Ecuador [2 10], and to Venezuela [3], Trinidad [3 11], and Guiana [1].

Mr. Henry Whitely has recently sent us skins of this bird from Roraima in British Guiana, the same locality whence Schomburgk obtained the types described by Dr. Cabanis [1]. Our examples from Roraima agree fairly well with others from other points of the range of the species ; but we notice that the underparts are much less spotted, the spots being almost confined to the chest, the throat and abdomen being plain.

Venezuelan and Trinidad examples agrée closely with our series from Costa Rica and the State of Panama ; and should they be hereafter considered distinct from the Roraima bird, they all should bear the name *C. chrysophrys*, Scl.

Though this Tanager was known to Latham, and described in his 'General History of Birds' under the title of the Spotted Emerald Tanager [11], it was confused with an allied species, *Calliste punctata* (L.), until the year 1850, when Dr. Cabanis gave it its present name ; and almost at the same time, or shortly after, as Mr. Sclater tells us, it received two other appellations at the hands of Mr. Sclater and Prince Bonaparte. All this is explained in the monograph of the genus *Calliste* written and published by the former ornithologist [3].

The range of *Calliste guttata* is somewhat remarkable, spreading as it does along the whole of the north coast of South America, then turning northwards to Costa Rica, and southwards to Ecuador.

Regarding its record from the last-named country, we observe that the single example obtained by Bourcier from Mindos, in the north-western portion of the Republic, which formed the type of Bonaparte's *C. guttulata*, is the only one we have heard of from so far south. Neither Fraser nor Buckley met with it, nor have we seen specimens in the many collections we have examined from Ecuador. It is also worthy of note that the species is also absent from the list of Salmon's collections from Antioquia. But it is not uncommon in trade collections sent from Bogota ; and Mr. C. W. Wyatt found it in the mountains above Ocaña [8]. It is absent from the line of the Panama railway ; but appears on the slopes of the Volcan de Chiriqui, and in several parts of the eastern side of Costa Rica.

3. Calliste icterocephala.

Calliste icterocephala, Bp. Compt. Rend. xxxii. p. 76[1]; Scl. P. Z. S. 1856, p. 251[2]; 1860, p. 87[3]; Scl. Mon. Call. p. 37, t. 17[4]; Cat. Am. B. p. 65[5]; Salv. P. Z. S. 1867, p. 138[6]; 1870, p. 186[7]; Lawr. Ann. Lyc. N. Y. ix. p. 98[8]; v. Frantz. J. f. O. 1869, p. 298[9]; Scl. & Salv. P. Z. S. 1879, p. 498[10].

Callispiza (*Chrysothraupis*) *frantzii*, Cab. J. f. Orn. 1861, p. 87[11].

Flavus, interscapulio et tectricibus alarum superioribus nigro variegatis, loris et stria infra oculos nigris; alis caudaque nigris aurescenti-viridi extus limbatis; gutture et torque cervicali postica pallide viridescenti-argenteis; rostro nigro, pedibus plumbeis. Long. tota 5·5, alæ 2·9, caudæ 2·0, rostri a rictu 5·5, tarsi 0·7. (Descr. maris ex Dota, Costa Rica. Smiths. Inst. No. 54238. Mus. nostr.)

♀ mari similis, sed supra viridescenti-aurea et coloribus omnibus obscurioribus. (Descr. feminæ ex Sante Fé, Panama. Mus. nostr.)

Hab. Costa Rica[11], Candelaria mountains[9], Dota[8 9] (*v. Frantzius*), valleys of Turrialba (*v. Frantzius*[9], *Cooper*[8], *Arcé*), Barranca (*v. Frantzius*[9], *Carmiol*[8]), San José (*Carmiol*[8]); Panama, Volcan de Chiriqui[7], Vivala, Boquete de Chitra[7], Cordillera del Chucu[7], Cordillera de Tolé[6], Calovevora[7], Santa Fé[6], Calobre (*Arcé*).—South America, Colombia[10], Ecuador[1 2 3 4 5].

When Mr. Sclater wrote his 'Monograph of the Genus *Calliste*' in 1857, only two specimens of this species were known to him, both of which were brought by Bourcier from Punta Playa, a valley of the Andes near Quito in Ecuador[4]. A few years afterwards, Fraser found it at Nanegal in the same country[3], and it would appear to be not uncommon in Western Ecuador, as specimens are generally to be found in collections forwarded thence. Tracing its range northwards, we have an example from the vicinity of Pasto, and again from Remedios in Colombia, where Salmon found it[10]. We are not aware, however, that it ever occurs in the trade collections sent from Bogota. From the isthmus of Panama itself it is absent, at least from all the lowlying land yet investigated; but throughout the country situated between Calobre and the volcano of Chiriqui it is perhaps commoner than at any other point of its range. In Costa Rica, too, beyond which point it has not yet been traced, it is by no means a rare bird. Dr. Cabanis was the first to receive specimens from the latter country; these he described as *Callispiza frantzii*[11]. It has since been proved that he founded his description upon female birds; and the receipt of a good series of both sexes shows that no real difference exists between Costa-Rican birds and typical ones from Ecuador. If anything, adult males of the northern bird are a shade more golden in their upper plumage; but the difference is quite trivial.

Little has been recorded of *Calliste icterocephala*. Fraser remarks:—"Irides hazel; bill black; legs and feet blue; food green minute-seeded fruit."

Calliste icterocephala has no very near allies in the genus; but it belongs to the same group or section containing *C. aurulenta*, of which there are five species, all found in the Andes between Peru, Ecuador, Colombia, and Venezuela. Of these, it is the only one which extends its range into our region.

4. Calliste gyroloides.

Aglaia gyroloides, Lafr. Rev. Zool. 1847, p. 277 [1].

Calliste gyroloides, Scl. P. Z. S. 1856, pp. 142 [2], 255 [3]; 1857, p. 264 [4]; 1859, p. 139 [5]; Mon. Call. p. 57, t. 26 [6]; Lawr. Ann. Lyc. N. Y. vii. p. 332 [7]; ix. p. 98 [8]; Scl. & Salv. P. Z. S. 1864, p. 350 [9]; 1879, p. 499 [10]; Salv. P. Z. S. 1867, p. 138 [11]; 1870, p. 186 [12]; v. Frantz. J. f. Orn. 1869, p. 298 [13]; Wyatt, Ibis, 1871, p. 325 [14].

Aglaia gyrola, d'Orb. & Lafr. Syn. Av. i. p. 32 [15] (nec Linn.).

Tanagra gyrola, d'Orb. Voy. Am. Mér. vi. Ois. p. 272 [16].

Aglaia peruviana, Swains. An. in Menag. p. 356 [17].

Calliste cyanoventris, Gray, Gen. Birds, ii. p. 366 [18].

Supra clare viridis, capite et mento castaneis, torque nuchali et humeris aurescentibus; dorso postico et abdomine toto cæruleis; crisso viride; tibiis pallide rufis; rostro et pedibus obscure corylinis. Long. tota 5·5, alæ 3·0, caudæ 2·0, rostri a rictu 0·6, tarsi 0·7.

♀ mari similis, sed coloribus omnibus paulo obscurioribus. (Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Av. juv. fere omnino viridis subtus pallidior. (Descr. av. hornot. ex Calovevora, Panama. Mus. nostr.)

Hab. Costa Rica, Savanilla de Pirris (*v. Frantzius* [13]), Barranca, Guaitil, Dota (*v. Frantzius* [13], *Carmiol* [8]), Turrialba (*Arcé*); Panama, Chiriqui (*Bridges* [2]), Volcan de Chiriqui [12], Bugaba [12], Boquete de Chitra [12], Vivala, Cordillera del Chucu [12], Calovevora [12], Santa Fé [11] (*Arcé*), line of railway (*M'Leannan* [7 9]).—South America, Colombia [3 10 13] to Ecuador [3 5], Peru [3 17] and Bolivia [15], Upper Amazons [4].

Some years had expired after specimens of this bird had been obtained before it remained in quiet possession of its present title. At first it was unrecognized from *Calliste gyrola* of Linnæus, to which it bears a general resemblance. Swainson then perceiving its differences gave it the name of *Aglaia peruviana* [17], unfortunately choosing a title that had already been adopted for a bird of the same genus. The same misfortune attended the name *C. cyanoventris* chosen for it by G. R. Gray [18]. Finally, in 1847, Lafresnaye called it *Aglaia gyroloides* [1], under which specific name it has since passed.

C. gyroloides belongs to a group of four well-marked green-backed *Calliste*. From the Guiana *C. gyrola* it differs in having the rump and the whole of the underparts blue. The same differences separate it from the Venezuelan *C. desmaresti*, in which the underparts are wholly green. The green chest and flanks and the chestnut of the primaries of *C. laviniæ* of Central America render it again very easily distinguishable from *C. gyroloides*.

In its range *C. gyroloides* covers a much wider area than any of the other allied species, being found uninterruptedly from Bolivia to Costa Rica. It diverges but little from the slopes of the Andes; and, though found as far east as the Rio Javarri in the Upper Amazons [4], it would appear to be by no means common anywhere in the valley.

In all collections made in Ecuador and Colombia *C. gyroloides* is a conspicuous species, and it would appear to be a very common bird in those countries. It is equally so in the State of Panama, whence numbers of specimens have been sent us.

Of its habits little has been recorded. Salmon says its food is fruit [10]; Fraser says "vegetable matter" and "fruit with small seeds:" he adds that "the irides are hazel, the bill black, and the legs and feet bluish" [5].

5. Calliste laviniæ.

Calliste laviniæ, Cassin, Pr. Ac. Phil. 1858, p. 178 [1]; 1860, p. 142, t. 1. f. 1 [2]; Salv. Ibis, 1872, p. 315 [3]; Scl. Ibis, 1876, p. 409 [4].

Læte viridis, capite toto saturate castaneo, cervice postica et dorso antico aureo nitentibus; alis fusco-nigris, remigibus extus in medio rufo limbatis, tectricibus quoque minoribus rufescentibus, subtus abdomine medio cæruleo, tibiis rufescentibus; rostro et pedibus corylinis, illius mandibula albicante. Long. tota 5·0, alæ 2·7, caudæ 1·85, rostri a rictu 0·6, tarsi 0·65. (Descr. exempl. ex Chontales, Nicaragua. Mus. nostr.)

♀ an avis hornot. fere omnino viridis, capite castaneo inornato et abdomine vix cæruleo et alis vix castaneo ornatis. (Descr. exempl. ex Veraguas, Panama. Mus. nostr.)

Hab. Nicaragua, Chontales (*Belt* [3 4], *Janson* [3]); Costa Rica (*van Patten* [4]); Panama, Veraguas (*Arcé* [4]), Rio Truando (*Wood* [1 2]).

For many years the only specimens of this species known were those described by Cassin. They were obtained during Lieut. Michler's expedition to the isthmus of Darien at Camp Toucey, in the mountains on the Rio Truando, where they were found by Mr. Wood, in March 1858, in the high trees, and were very active and lively, and not easily obtained.

A specimen was then found in a collection brought by Van Patten from Costa Rica; and soon afterwards we obtained a fair series of skins from Belt, who met with them in the gold-mining region of Chontales in Nicaragua. It has since occurred in collections sent by Arcé from the State of Panama.

These specimens all exhibit the characters given of the species by Cassin, and which are fairly shown in the figure accompanying his paper on Lieut. Michler's collections [2].

The species is a very distinct one, and may at once be recognized by the rufous edgings to the primaries and the rufous wing-coverts: otherwise it resembles *C. gyrola* of Guiana rather than *C. gyroloides*.

In our series we have specimens which are almost entirely green, and show but faint traces of the characters of the adult. These we take to be females or young birds; but, judging from analogy of what we find in the allied species, most probably the latter.

6. Calliste cabanisi.

Calliste (*Callispiza*) *sclateri*, Cab. J. f. Orn. 1866, p. 163 [1] (nec Lafresnaye).

Calliste cabanisi, Scl. Ibis, 1868, p. 71, t. 3 [2].

"Supra viridescenti-cærulea, alis caudaque nigris cæruleo marginatis, tectricibus alarum minoribus extus omnino cæruleis, interscapulio toto viridi, pilei plumis nigris cæruleo marginatis; subtus pallide viridescenti-cærulea, ventre medio albescente; pectore nigro squamulato; rostro et pedibus nigris, mandibula ad basin plumbescenti. Long. tota 5·7, alæ 3·4, caudæ 2·3." (*Sclater, ut supra.*)

Hab. Guatemala, Costa Cuca [1] (*Bernoulli* [2]).

The single specimen in the Berlin Museum which formed the type of Dr. Cabanis's

and Mr. Sclater's descriptions, so far as we know, still remains unique. We have made several attempts to obtain more specimens, and wrote to the late Dr. Bernoulli about it, but without result. Dr. Bernoulli, in reply to our questions, said that it was he, as Salvin supposed [2], who obtained the original specimen, but that he had never been able to secure another.

The Costa Cuca, lying as it does on the Mexican frontier, near to Soconusco on the Pacific coast, is far from the haunts of the bird-hunters of Vera Paz; and it is only through some resident in that remote district interested in birds that we may hope for further news of this interesting species.

We have long entertained some hopes of its being found in the State of Chiapas, and that we should hear of it through Professor Sumichrast; but, owing to the death of that industrious naturalist, this hope, too, is gone.

As Mr. Sclater remarks, this fine large *Calliste*, nearly equalling in size *C. brasiliensis*, comes perhaps nearer to *C. atricapilla* than to any other species [2].

The type specimen was submitted to Mr. Sclater in 1868, when we had an opportunity of examining it. A figure of it was then taken, which accompanies Mr. Sclater's paper.

The name *C. sclateri*, originally proposed for this *Calliste* by Dr. Cabanis, being inadmissible, there being already a *Calliste* of that name proposed by Lafresnaye, Mr. Sclater returned Dr. Cabanis's compliment by renaming the species *Calliste cabanisi*, which will remain its future title.

7. Calliste dowi.

Calliste dowi, Salv. P. Z. S. 1863, p. 168 [1]; 1870, p. 187 [2]; Scl. Ibis, 1863, p. 451, t. 12 [3]; Lawr. Ann. Lyc. N. Y. ix. p. 98 [4]; v. Frantz. J. f. Orn. 1869, p. 298 [5].

Supra nigra, nuchæ et cervicis laterum plumis argentescenti-viridi terminatis, pilei margine postico ochrascente marginato; uropygio argentescenti-viridi; tectricibus, supracaudalibus, alis et cauda cæruleo marginatis; subtus gula tota nigra, pectore antico nigro plumis singulis viridescente cinnamomeo marginatis, abdomine toto cinnamomeo, subalaribus cinnamomeo-albidis; rostro nigro, mandibula ad basin pallida, pedibus corylinis. Long. tota 5·3, alæ 2·9, caudæ 2, rostri a rictu 0·45, tarsi 0·75. (Descr. exempl. typ. Costa Rica. Mus. nostr.)

♀ mari omnino similis, sed coloribus omnibus paulo obscurioribus.

Hab. Costa Rica, Rancho Redondo (*J. M. Dow* [1 2]), Guadalupe [5], San Jose [4 5] (*v. Frantzius*), Turrialba, Navarro (*Cooper* [4]), Irazu (*Rogers*); Panama, Cordillera del Chucu (*Arcé* [2]).

The first specimen of this bird was given to us by Captain J. M. Dow in 1863. It was contained in a small collection of Costa-Rican birds, which Capt. Dow had brought from the interior of the country, and had on board his ship when Salvin passed down the coast in the spring of that year. We have since ascertained that this collection was made near Rancho Redondo.

The busy collectors of Costa Rica soon made *Calliste dowi* a familiar bird in our cabinets; and subsequently Arcé, whose labours in the State of Panama have done so

much to extend our knowledge of the bird-fauna of that part of the isthmus, showed us that the range of this species extends to the Cordillera del Chucu, on the confines of the province of Chiriqui.

Of the habits of *Calliste dowi* as yet we know nothing.

The nearest ally of this species appears to be *C. nigriviridis*, though the presence of an occipital spot suggests an affinity to *C. ruficervix* of Colombia and Ecuador, and to *C. fulvicervix* of Bolivia, and with all these birds it must no doubt be grouped. *C. dowi*, however, has characters of its own, rendering it easily recognizable.

8. **Calliste inornata.**

Calliste inornata, Gould, P. Z. S. 1855, p. 158[1]; Scl. P. Z. S. 1856, p. 258[2]; Mon. Call. p. 103, t. 45[3]; Cassin, Pr. Ac. Phil. 1860, p. 142[4]; Lawr. Ann. Lyc. N. Y. vii. p. 298[5]; Scl. & Salv. P. Z. S. 1864, p. 350[6]; 1879, p. 499[7].

Supra cinerea, uropygio paulo dilutiore, alis et cauda nigricanti-fuscis, humeris læte cæruleis; subtus pallide cinerea, ventre albicante, subalaribus albis; rostro nigro; pedibus plumbeis. Long. tota 4·7, alæ 2·65, caudæ 1·9, rostri a rictu 0·5, tarsi 0·6.

♀ mari omnino similis. (Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Hab. PANAMA, Veraguas (*Arcé*), Panama city (*A. H. Markham*), Lion-Hill Station (*M'Leannan*[5 6]), Turbo (*Wood*[4]).—COLOMBIA[1 2 3 7].

The true status of this plainly coloured species was questioned for some time; and it was even suggested that it might be merely the young of *Calliste larvata*, or the female of that bird[4]. Mr. Sclater, hesitating as to its true position, placed it at the end of his Monograph of the genus[3]. Its describer, Gould, whose judgment in such matters was seldom at fault, always stoutly maintained the plain colours of the bird were its normal adult dress, and that its distinctness from all others was complete. This view has now been proved to be perfectly correct.

Of *C. larvata* we have specimens of both sexes carefully dissected, and we find that there is hardly any appreciable difference between them. Of the young, too, of *C. larvata* we have several examples in moult from their first plumage; and these, too, differ so much from *C. inornata* that no question of the identity of the two birds can be maintained for a moment. This, too, is Mr. Lawrence's conclusion[5].

Gould's type of *C. inornata* was a skin from one of the ordinary trade collections from Bogota, and in such collections specimens may occasionally, but not very commonly, be found. It is probably in the valley of the Magdalena that these specimens are obtained, as we know nothing of the bird from the eastern side of the Andes, and, on the other hand, Salmon found it at Nechi in the State of Antioquia[7]. Passing northwards, it was met with during Lieut. Michler's expedition[4]; and at Panama it seems to be more numerous than elsewhere, so far as our present knowledge goes. It has also been included in Arcé's collections, made probably in the vicinity of Calobre; but on this point we have no exact information.

Of its habits little has reached us. The Messrs. Wood merely remark that they found it in the same trees as *C. franciscæ* (=*larvata*), of which they believed it to be the female or young male. M'Leannan found it breeding, the nests being placed in low trees [5].

9. Calliste larvata.

Calliste larvata, DuBus, Esq. Orn. t. 9 [1]; Scl. P. Z. S. 1856, p. 260 [2]; Mon. Call. p. 81, t. 36 [3]; Cat. Am. B. p. 70 [4]; Scl. & Salv. Ibis, 1859, p. 16 [5]; 1860, p. 33 [6]; P. Z. S. 1870, p. 836 [7]; 1879, p. 499 [8]; Salv. Ibis, 1872, p. 316 [9].

Aglaia fanny, Lafr. Rev. Zool. 1847, p. 72 [10]; Des Murs, Icon. Orn. t. 56. f. 1 [11].

Calliste franciscæ, Scl. P. Z. S. 1856, p. 261 [12]; Mon. Call. p. 83 [13]; Cassin, Pr. Ac. Phil. 1860, p. 142 [14], Lawr. Ann. Lyc. N. Y. vii. pp. 298 [15], 332 [16]; viii. pp. 175 [17], 179 [18]; ix. p. 98 [19]: Scl. & Salv. P. Z. S. 1864, p. 350 [20]; Salv. P. Z. S. 1867, p. 138 [21]; 1870, p. 187 [22]; v. Frantz. J. f. Orn. 1869, p. 298 [23].

Capite colloque toto cum gula nitidissime cuprescenti-aureis; rostri ambitu nigro; pileo antico et capitis lateribus cæruleis, hujus coloris margine posteriore in viridescentem transeunte; interscapulio, alis caudaque cum pectore toto nigris; tectricibus alarum minoribus cæruleis, mediarum autem et majorum cum dorso postico cyaneis; remigibus et tectricibus aurescenti-viridi limbatis; abdomine medio albo utrinque cæruleo, lateribus viridescentibus; rostro et pedibus nigris. Long. tota 5·2, alæ 2·8, caudæ 1·9, rostri a rictu 0·55, tarsi 0·6. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ mari omnino similis sed coloribus paulo dilutioribus. Av. hornot. inornata sed capite toto et uropygio semper viridescente tinctis.

Hab. Mexico, Tabasco (*Ghiesbreght* [1]); British Honduras, Belize (*Blancaneaux*); Guatemala, Yzabal [6], Choctum, Chisec (*O. S. & F. D. G.*); Honduras, Rio Chamelican (*Dyson* [2 3 5]), San Pedro (*G. M. Whitely* [7]); Nicaragua, Chontales (*Belt* [9]), Greytown (*Holland* [18]); Costa Rica (*v. Frantzius* [23]), Angostura (*Carmiol* [19]), Turrialba (*Cooper* [19], *Arcé*), San José (*Cooper* [19]); Panama, David (*Hicks* [17], *Bridges* [12]), Bugaba [22], Vivala, Mina de Chorcha [22], Chitra [22], Laguna del Castillo [22], Cordillera de Tolé [21], Calovevora [22], Santa Fé [21] (*Arcé*), Veraguas (*Delattre* [10 12]), Lion-Hill Station (*M'Leannan* [15 16 20]), Paraiso Station (*Hughes*), Turbo (*Wood* [14]). —Colombia [8 10 11].

The distinctness of the more southern *Calliste franciscæ* from the more northern *C. larvata* was long urged, and we have got together a large series of skins with the object of coming to a conclusion on this point. The result has been that, with the growth of our series the distinctness of the two birds has diminished, until we feel convinced that to maintain them as distinct is no longer advisable. This much, however, must be noticed, that Guatemalan birds have as a rule a darker copper-coloured throat than is found in birds from Panama, and in some of the latter, though by no means all, the edgings of the greater wing-coverts is evanescent. But, looking at the whole series of skins from all parts of the range of the species, it will be seen that these differences are variable and, at the most, slight.

Calliste larvata was discovered in the Mexican province of Tabasco by Ghiesbreght

in 1841; and two specimens sent to the Brussels Museum were described, and one of them figured, by DuBus in one of the parts of his unfinished 'Esquisses Ornithologiques,' published in 1846 [1].

For some time subsequent to that date *C. larvata* remained a very rare bird, though Dyson found it in Honduras, and specimens of his passed into the collection of the British Museum [2]. In 1847 Lafresnaye described the southern bird, from specimens obtained by Delattre, as *Aglaia fanny* [10], a name subsequently changed into *francescæ* by Mr. Sclater [13]. It is not accurately known where Delattre's specimens came from; but it has been said from Colombia. This may well be; for we now know, from skins sent by Salmon from Remedios in the State of Antioquia, that *C. larvata* does pass into the South-American continent [8].

In Guatemala *C. larvata* is by no means a rare bird in the forest-districts of Vera Paz up to an elevation of about 1500 feet. We here obtained several specimens in 1862, and in the same districts our native hunters secure a considerable number. In 1859 Salvin met with it in the month of June in the forest in the outskirts of the village of Yzabal, on the lake of the same name. The birds were usually seen in the open parts of the forest, flying about, and hopping from tree to tree in pairs. Their cry was feeble, and rather like that of some Finch [6].

Throughout the rest of Central America *Calliste larvata* occurs in most of the suitable localities; but it must be observed that it appears to restrict its range to the forests of the Atlantic, or eastern side of the country, until we reach the State of Panama. Tabasco, where it was originally discovered, seems to be the northern limit of its range, as it has never been met with by any of the energetic collectors who have worked in Southern Mexico.

M'Leannan states that this species builds in a large species of prickly palm [15].

Note.—The following species of *Calliste* have been attributed to Mexico, but there is every reason to suppose that they do not occur there :—

Calliste mexicana (L.), now known as a Guiana species, and the name *mexicana* being erroneous, the bird passes under that of *C. flaviventris* (Vieill.) (*cf.* Scl. Mon. Call. p. 63).

Calliste arthusi, Less., Bp. Consp. i. p. 235. Mexico.
This is a purely Venezuelan species.

Calliste chrysotis, DuBus, Bp. Consp. i. p. 236. Mexico.
A species of Ecuador and Peru.

BUTHRAUPIS.

Buthraupis, Cabanis, Mus. Hein. i. p. 29 (1850).

Only one of the six species contained in this genus occurs within our region, where it is restricted to the higher mountain-region of the State of Panama, never having been

seen as yet in Costa Rica or the more southern States of Colombia. The remaining five species have all a more or less limited range. *B. eximia* is found in Colombia alone, *B. chloronota* and *B. edwardsi* in Ecuador, and *B. montana* in Bolivia. The species of widest range is *B. cucullata*, which is found in Colombia, Ecuador, and in a slightly modified form in Peru.

The genus *Buthraupis* is evidently allied to true *Tanagra*; but most of the species are of a more robust build, and have a stronger and stouter bill, with the usual sub-terminal notch very distinct; the wings are rather long, the second, third, and fourth quills being the longest in the wing; the tarsi are stout, but the toes rather short. The sexes are alike in coloration, in which dark blue and bright yellow are the chief colours.

1. Buthraupis arcæi.

Buthraupis arcæi, Scl. & Salv. P. Z. S. 1869, p. 439, t. 31 [1]; Salv. P. Z. S. 1870, p. 187 [2].

Supra saturate cærulea; alis caudaque nigris cæruleo extus limbatis; subtus læte flava, capitis lateribus et gula tota nigris, hac viridi adumbrata; tectricibus subalaribus albis flavo tinctis; rostro et pedibus nigris. Long. tota 6·0, alæ 3·5, caudæ 2·0, rostri a rictu 0·75, tarsi 0·9. (Descr. maris ex Cordillera del Chucu, Panama. Mus. nostr.)

♀ mari omnino similis.

Hab. Panama, Cordillera del Chucu [1 2], Calobre (*Arcé*).

This is a well-marked species of the genus *Buthraupis*, of which it is the smallest member except *B. edwardsi* of Western Ecuador, to which it has no great resemblance in coloration. In this respect it is more like the large *B. cucullata*, but the head, instead of being black, is of the same colour as the back, and the under surface is deeper yellow.

Buthraupis arcæi is evidently a rare bird, having a very limited range. The only specimens we have seen are those obtained by our collector Arcé, who shot the types in the Cordillera del Chucu, and afterwards a few additional specimens in the neighbourhood of Calobre.

Of the habits of this bird we know nothing.

TANAGRA.

Tanagra, Linnæus, Syst. Nat. i. p. 313 (1766); Scl. P. Z. S. 1856, p. 231.

Three species only out of twelve or thirteen constituting this genus are found in Mexico and Central America: of these, *Tanagra abbas* alone is peculiar to the region. Of the others, *T. palmarum* ranges from Costa Rica over nearly the whole of Tropical South America, and *T. cana*, with a more extensive range within our country, passes southwards to Ecuador and Venezuela. The other species of the genus are wholly South-American, none being found in the West-Indian Islands except Trinidad and Tobago.

Tanagra has a more feeble bill than *Buthraupis*, the culmen rather strongly curved, and the gonys but slightly ascending; the nostrils are round and open, situated at the end of the nasal fossa; the wings are long, and the tarsi short, in accordance with the insessorial habits of all the species. In general coloration olive and blue are the chief colours in the Central-American species; but the most brightly coloured birds are in South America, orange and red appearing in the plumage of *T. striata*.

1. Tanagra cana.

Tanagra cana, Sw. Orn. Draw. t. 37 [1]; Scl. P. Z. S. 1856, p. 232 [2]; Cab. Mus. Hein. i. p. 29 [3]; Cassin, Pr. Ac. Phil. 1860, p. 141 [4]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [5]; Scl. & Salv. P. Z. S. 1879, p. 500 [6]; Salv. Cat. Strickl. Coll. p. 188 [7].

Tanagra (*Aglaia*) *diaconus*, Less. Rev. Zool. 1842, p. 175 [8].

Tanagra diaconus, Scl. P. Z. S. 1856, pp. 142 [9], 233 [10], 303 [11]; 1859, p. 364 [12]; 1864, p. 173 [13]; Scl. & Salv. Ibis, 1859, p. 16 [14]; 1860, p. 33 [15]; P. Z. S. 1864, p. 350 [16]; 1870, p. 836 [17]; Moore, P. Z. S. 1859, p. 59 [18]; Taylor, Ibis, 1860, p. 111 [19]; Lawr. Ann. Lyc. N. Y. viii. p. 175 [20]; ix. p. 99 [21]; Salv. P. Z. S. 1867, p. 138 [22]; 1870, p. 187 [23]; Ibis, 1872, p. 316 [24]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [25]; v. Frantz. J. f. Orn. 1869, p. 298 [26].

Thraupis diaconus, Cab. J. f. Orn. 1860, p. 330 [27].

Tanagra episcopus, Bp. P. Z. S. 1837, p. 116 [28].

Cærulescenti-cana, dorso toto obscuriore, uropygio vix cærulescente; alis caudaque fusco-nigris, cæruleo limbatis, humeris et tectricibus alarum minoribus lætissime cæruleis, subalaribus albis; rostro et pedibus obscure plumbeis. Long. tota 6·0, alæ 3·4, caudæ 2·5, rostri a rictu 0·6, tarsi 0·7. (Descr. maris ex Lanquin, Guatemala. Mus. nostr.)

♀ mari omnino similis.

Hab. Mexico (*White* [13]), Hot region of Vera Cruz (*Sumichrast* [25], *le Strange*), Cordova (*Sallé* [11]), Jalapa (*de Oca* [12]); British Honduras, Belize (*Leyland* [18], *Blancaneaux*); Guatemala (*Velasquez de Leon* [28], *Constancia* [7 14]), Peten (*Leyland* [18]), Yzabal, Cahabon, Lanquin, Choctum, Yaxcabnal, Dueñas [15], Escuintla, Santa Lucia Cosamalguapa, Retalhuleu (*O. S. & F. D. G.*); Honduras (*Edwards* [19]), San Pedro (*G. M. Whitely* [17]), Omoa (*Leyland* [18]); Nicaragua, Realejo (*Lesson* [8]), Chontales (*Belt* [24]); Costa Rica (*Hoffmann* [27], *v. Frantzius* [26]), San Jose and Angostura (*Carmiol* [21]), Tucurriqui (*Arcé*), Irazu (*Rogers*), Bebedero Nicoya (*Arcé*), Punta Arenas (*O. S.*); Panama, Chiriqui (*Bridges* [9]), David (*Hicks* [20]), Santa Fé [22], Calovevora [23], Chitra [23] (*Arcé*), Lion-Hill Station (*M'Leannan* [5 16]), Paraiso Station (*Hughes*), Turbo (*Wood* [4]).—Colombia [26]; Ecuador; Venezuela [3]; Trinidad [2] and Tobago [7].

Our dissected specimens show that there is no apparent difference between the male and female of this species as regards coloration; but we have several examples in which the plumage is of a greener cast, the head of nearly the same colour as the back, and the blue of the wings duller in tint. These we take to be birds killed out of the breeding-season, or perhaps young birds which have not yet assumed their fully coloured plumage.

There is little difference to be traced in birds from different parts of Mexico and Central America, and with these birds from Colombia closely agree, but in Ecuador the blue of the wings is rather richer in tint. This is most strongly seen on comparing an example from Belize with one from the island of Puna in the Gulf of Guayaquil. We are inclined, however, to include all the forms under the name of *Tanagra cana*.

This title was bestowed by Swainson upon a bird which he figured in his 'Ornithological Drawings,' and represents the race of the northern parts of South America. The Central-American bird was described by Lesson, from specimens obtained at Realejo near the Pacific coast of Nicaragua, as *Tanagra diaconus*. The two birds were kept separate by Mr. Sclater in his "Synopsis Avium Tanagrarum," published in the 'Proceedings of the Zoological Society' for 1856. The large amount of additional materials has since led us to the conclusion that the two birds are not definitely distinct, and in the 'Nomenclator Avium Neotropicalium' they were united under Swainson's title.

As will be seen above, *Tanagra cana* has a wide range throughout our region, from Southern Mexico to Panama. It is, as Sumichrast says, a bird of the low-lying hot region, from which it ascends to a height of upwards of 3000 feet at such times as certain fruits ripen in the mountains [25]. We once obtained one of these birds at Dueñas in Guatemala at a height of nearly 5000 feet [15]; but the species is seldom to be seen so high as this.

These birds pass most of their time in fruit-trees. Salmon found them building in orange-trees near Medellin in the Colombian State of Antioquia. The eggs are of a rich brown, densely blotched with darker spots, especially at the larger end [6].

2. Tanagra abbas.

Tanagra abbas, Licht. Preis-Verz. mex. Vög. p. 2 (*cf.* J. f. Orn. 1863, p. 57 [1]); Scl. P. Z. S. 1856, pp. 235 [2], 303 [3]; 1859, pp. 364 [4], 378 [5]; 1864, p. 173 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [7]; Scl. & Salv. P. Z. S. 1870, p. 836 [8]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 19 [9]; Salv. Cat. Strickl. Coll. p. 189 [10].

Tanagra (*Aglaia*) *vicarius*, Less. Cent. Zool. p. 206, t. 68 [11].

Tanagra vicarius, Bp. P. Z. S. 1837, p. 116 [12]; Scl. & Salv. Ibis, 1859, p. 16 [13]; Moore, P. Z. S. 1859, p. 59 [14]; Taylor, Ibis, 1860, p. 111 [15].

Pallide olivascens, capite cæruleo, gutture cærulescente; interscapulii plumis medialiter nigris, alis et cauda nigris, speculo alari et secundariis ad basin flavissimis; tectricibus alarum majoribus olivaceis, minoribus cærulescentibus; rostro et pedibus nigro-plumbeis. Long. tota 6·8, alæ 3·9, caudæ 2·7, rostri a rictu 0·7, tarsi 0·85. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ mari valde similis sed coloribus paulo dilutioribus, gutture minus cærulescente. (Descr. exempl. ex Chisec, Guatemala. Mus. nostr.)

Hab. Mexico [11], valley of Mexico (*White* [6]), Tierra caliente of the Atlantic coast (*le Strange*), hot and temperate region of Vera Cruz (*Sumichrast* [7]), Jalapa (*Deppe* [1], *de Oca* [4]), Cordova (*Sallé* [2 3]), Orizaba (*Botteri* [2]), Teotalcingo and Villa Alta (*Boucard* [5]), Guichicovi (*Sumichrast* [9]); British Honduras, Belize (*Leyland* [14],

Blancaneaux); Guatemala (*Velasquez de Leon* [12], *Constancia* [10]), Peten (*Leyland* [14]), Chisec, Choctum, Coban, Cahabon, Tactic, Dueñas [13], Retalhuleu and Patio Bolas (*O. S. & F. D. G.*); Honduras (*Dyson* [2]); Omoa (*Leyland* [14]), San Pedro (*G. M. Whitely* [8]), Lake Yojoa (*Taylor* [15]).

This is a purely Central-American species, allied to the South-American *T. palmarum*, the place of which it takes in Southern Mexico, Guatemala, and Honduras.

The first specimens sent to Europe were those of Deppe, who obtained them at Jalapa in Mexico, and which were very briefly described by Lichtenstein in his list of Deppe's duplicates [1]. Since then *T. abbas* has been found in abundance in Southern Mexico by all subsequent collectors. Sumichrast says that it is an inhabitant of both the hot and temperate regions, its movements being determined by the ripening of the fruits [7]. In Guatemala we found the same to be the case, and that its range in altitude exceeded that of *Tanagra cana*, as it was frequently to be found at an elevation of 5000 feet, especially in orchards [8].

A nest found at Dueñas in the month of May was a compact structure composed of small twigs with a little wool, and lined with a few pieces of dead flag, fine roots, and horse-hair. This is usually placed in a cypress or some thick-growing tree, in the upper part of a branch about ten or twelve feet from the ground. The eggs, three in number, are spotted or blotched with three shades of a reddish brown on a pale bluish-grey ground [14].

The name *Tanagra vicarius* given to this bird by Lesson in 1830, in his 'Centurie Zoologique,' was based upon specimens from Mexico [11]. In point of date this description appeared close to that of Lichtenstein, but the latter has been more generally adopted by subsequent writers.

3. **Tanagra palmarum.**

Tanagra palmarum, Weid, Reise n. Bras. ii. p. 76 [1]; Beitr. iii. p. 489 [2]; Scl. P. Z. S. 1856, p. 234 [3]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [4]; Scl. & Salv. P. Z. S. 1867, p. 571 [5]; 1873, p. 262 [6]; 1879, pp. 500 [7], 600 [8]; v. Pelz. Orn. Bras. p. 209 [9].

Tanagra olivascens, Licht. Verz. Doubl. p. 32 [10].

Tanagra melanoptera, "Hartl.," fide Scl. P. Z. S. 1856, p. 235 [11]; Scl. & Salv. P. Z. S. 1864, p. 350 [11]; Salv. P. Z. S. 1867, p. 138 [12]; Lawr. Ann. Lyc. N. Y. ix. p. 99 [13]; v. Frantz. J. f. Orn. 1869, p. 298 [14]; v. Pelz. Orn. Bras. p. 209 [15].

Intense oleaginea, interscapulio obscuriore et cærulescente tincto, tectricibus alarum majoribus viridescente lavatis, capite fere concoloribus, minoribus oleagineo-cærulescentibus; alis et cauda nigro fuscis, illis vix olivaceo-viridi limbatis; speculo alari et secundariis ad basin pallide olivaceis; alis et cauda plumbeo-nigris Long. tota 6·5, alæ 3·8, caudæ 2·9, rostri a rictu 0·7, tarsi 0·7. (Descr. maris ex Paraiso Station, Panama. Mus. nostr.)

♀ mari similis, sed coloribus omnibus paulo obscurioribus.

Hab. Costa Rica, Santa Rosa, Angostura, Turrialba (*v. Frantzius* [14], *Carmiol* [13]), Tucurriqui (*v. Frantzius* [14], *Arcé*); Panama, Santiago de Veraguas (*Arce* [12]), Lion-

Hill Station (*M'Leannan* [11]), Paraiso Station (*Hughes*), Obispo (*O. S.*).—South America, from Colombia [7] and Guiana to Bolivia [8] and Brazil [1 2 9].

Western and north-western birds of this species long passed under the name of *Tanagra melanoptera* *, as in most of them the olive edging to the primaries is so indistinct when compared with that of South-eastern Brazilian examples as to render the outer half of the wing almost black. The difference is very slight at the most, and somewhat variable in extent, and being so, we think that the more recent practice of recognizing only a single species of this form the most correct. We notice, however, that the black-winged birds spread over a large part of Tropical America, extending from Guiana, the Upper Amazons, and Bolivia to Ecuador, Colombia, and Central America as far as Costa Rica. The Brazilian bird, the true *Tanagra palmarum*, is almost restricted to the south-eastern and southern parts of that empire; but Mr. Wallace's Para specimens are of this race rather than of the dark-winged one found in Guiana on the northern side of the Amazons.

Mr. Bartlett [6] speaks of this Tanager as abundant on the upper and lower Ucayali and in the neighbouring districts, where these birds congregate and feed in flocks. They are active and cheerful, he adds, and have a rather shrill note. Salmon [7] obtained its nest at Remedios in Colombia: this he describes as placed in the fork of a shrub or small tree, and formed of grass-stalks mixed with roots and fibres, and lined and ornamented on the outside with green moss. He says he never saw more than one egg in a nest, though he examined many. The eggs have a pale whitish ground, and are very thickly freckled with red-brown spots.

In Costa Rica this bird entirely takes the place of *T. abbas*, but in Honduras and northwards of this point the latter species prevails. One of the two no doubt is found in Nicaragua, but which one remains to be noted.

RHAMPHOCŒLUS.

Ramphocelus, Desmarest, Hist. Nat. d. Tangaras, p. 5 (1805); Scl. P. Z. S. 1856, p. 127.
Ramphopis, Vieill. Anal. p. 32 (1816).

We are acquainted with about twelve species of this purely Neotropical genus, five of which appear in our fauna. Of these two, *Rhamphocœlus passerinii* and *R. uropygialis* are peculiar to it. *R. icteronotus* and *R. dimidiatus* are species of North-western South America, and only enter our limits in the State of Panama, and *R. luciani* of the same State passes southwards into Eastern Peru. The widely ranging

* This name is attributed by Mr. Sclater to Dr. Hartlaub, and the reference given to the 'Revue Zoologique,' but without year or page. We have never succeeded in finding this description. The name, however, is sufficiently defined by Mr. Sclater in the P. Z. S. for 1856, p. 235.

and most characteristic species of the genus, *R. jacapa*, is not a member of our bird-fauna.

All the species are inhabitants of the hottest forests, on the outskirts of which they live. In Guatemala *R. passerinii* occurs only in such places, and hardly extends its range into the mountains above 1200 to 1500 feet.

The bill of *Rhamphocœlus* is its chief peculiarity, the base of the mandible on either side being swollen in a peculiar way so as to project conspicuously beyond the plumage; the nasal feathers project forwards so as almost to cover the nostrils; these are open and situated at the end of the fossa. The plumage generally is very soft, and scarlet of various shades enters largely into its coloration. This, in the case of *R. icteronotus*, is replaced by clear yellow. The wings are short and rounded, the fourth primary being slightly the longest. The tail is rounded, and the tarsi and feet rather feeble.

1. **Rhamphocœlus passerinii.** (Tab. XVIII. fig. 1.)

Ramphocelus passerinii, Bp. Antologia, 1831, no. 130, p. 3 [1]; Scl. P. Z. S. 1856, pp. 130 [2], 142 [3]; Scl. & Salv. Ibis, 1859, p. 16 [4]; 1860, p. 32 [5]; P. Z. S. 1867, p. 278 [6]; 1870, p. 836 [7]; Moore, P. Z. S. 1859, p. 59 [8]; Taylor, Ibis, 1860, p. 111 [9]; Lawr. Ann. Lyc. N. Y. viii. pp. 175 [10], 179 [11]; ix. p. 99 [12]; v. Frantz. J. f. Orn. 1869, p. 299 [13]; Salv. P. Z. S. 1870, p. 187 [14]; Ibis, 1872, p. 316 [15].

Ramphopis flammigerus, Baird, Stansbury's Exp. to Gt. Salt Lake, App. p. 36 [16].

Velutino-niger, dorso toto postico rubro-coccineo, plumis hujus partis ad basin albis; rostro plumbeo; pedibus obscure fuscis. Long. tota 6·5, alæ 3·1, caudæ 2·9, rostri a rictu 0·7, tarsi 0·9.

♀ flavo-brunneo olivascens, dorso postico brunnescenti-flavo, capite undique et gula fuscis; alis intus et cauda nigricantibus. (Descr. maris et feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. British Honduras, Belize river (*O. S.*), Belize (*Blancaneaux*); Guatemala, Choctum, Yzabal [4 5] (*O. S. & F. D. G.*), Cahabon (*Skinner* [4]), Tucuru (*Sarg*); Honduras, Atlantic coast (*Taylor* [9]), Omoa (*Leyland* [8]), San Pedro (*G. M. Whitely* [7]); Nicaragua, Mosquito coast (*Wickham* [6]), Chontales (*Belt* [15]), Greytown (*Holland* [11]); Costa Rica, Angostura and San Carlos (*v. Frantzius* [13], *Carmiol* [12]), Navarro (*v. Frantzius* [13], *Cooper* [12]), Orosi, Sarapiqui, Tucurriqui (*v. Frantzius* [13]), Barranca (*Arcé*); Panama, Chiriqui (*Bridges* [3]), David (*Hicks* [10]), Volcan de Chiriqui, Bugaba [14], Vivala, Mina de Chorcha [14] (*Arcé*).

The original specimens of this *Rhamphocœlus* described by Bonaparte were supposed to have come either from Mexico or Cuba [1], but it is now known that neither country can claim it as an inhabitant. In the tropical forests of Eastern Guatemala it is common, and we have traced it northwards to the Belize river in British Honduras, which seems to be nearly its extreme northern limit. In the forest country north of Coban in Vera Paz and thence to the shores of the lake of Yzabal *R. passerinii* is abundant, and no bird shows to such advantage as the male as he flies in the openings of the forest, the brilliant scarlet of his back being a most conspicuous object. We

several times found it abundant in the outskirts of the forest near Yzabal, some patches of one of the more slender species of bamboo being its favourite resort. *R. passerinii* is quite unknown from the western forests of Guatemala, which stretch to the shores of the Pacific. In Costa Rica v. Frantzius also considers it an inhabitant of the eastern forests, where he describes it as common [13]; we have, however, specimens from our collector Arcé, which were from La Barranca on the western slope of the mountain-range. In the neighbourhood of Chiriqui it has long been known to occur on the Pacific side of the Cordillera. Chiriqui seems to be the extreme limit of its range in this direction, for at Santiago de Veraguas, and thence to western South America, *R. icteronotus* entirely takes its place, the two birds never apparently being found in the same district.

2. Rhamphocœlus icteronotus.

Ramphocelus icteronotus, Bp. P. Z. S. 1837, p. 121 [1]; Rev. Zool. 1838, p. 8 [2]; DuBus, Esq. Orn. t. 15 [3]; Scl. P. Z. S. 1856, p. 131 [4]; 1859, p. 139 [5]; Cass. Pr. Ac. Phil. 1860, p. 141 [6]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [7]; Scl. & Salv. P. Z. S. 1864, p. 350 [8]; 1879, p. 501 [9]; Salv. P. Z. S. 1867, p. 139 [10]; Tacz. P. Z. S. 1877, p. 332 [11].

Ramphocelus varians, Lafr. Rev. Zool. 1847, p. 216 [12].

Velutino-niger, dorso toto postico lætissime flavo; rostro plumbeo; pedibus plumbeo-nigris. Long. tota 6·5, alæ 3·2, caudæ 2·9, rostri a rictu 0·75, tarsi 0·9.

♀ supra fusca, alis intus et cauda nigricantibus, dorso postico et corpore toto subtus flavis. (Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Hab. Panama, Santiago de Veraguas (*Arcé* [10]), Lion-Hill Station (*M'Leannan* [7 8]), Paraiso Station (*Hughes*), Turbo and the rivers Atrato and Truando (*Wood* [6]).—Colombia [4 9]; Ecuador [3 5]; Peru [11].

This beautiful species, which has no near ally in its genus, belongs to the forest-region of Peru and Ecuador west of the Andes, and thence passes northward through the lower part of the Cauca Valley in Colombia and into the isthmus of Panama to the province of Veraguas, beyond which it has not been found, *Rhamphocœlus passerinii* taking its place in Chiriqui and in the rest of Central America.

Rhamphocœlus icteronotus was first briefly described by Bonaparte in the 'Proceedings of the Zoological Society' for 1837 [1], and subsequently more at length in the 'Revue Zoologique' (1838). Some eight or nine years afterwards DuBus gave drawings of it in his 'Esquisses Ornithologiques' from specimens obtained near Guayaquil in Ecuador [3], in the western part of which Republic Fraser also met with it near Pallatanga and other places, where he says it is commonly seen on orange-trees [5]. It has also been obtained at other points on the west coast of Colombia, at San Buenaventura by Delattre [4], and at Choco Bay by Capt. Kellett [4]. Salmon, who found it at Remedios and Nechi in the State of Antioquia [9], obtained its nest, which he describes as made of small twigs, moss, and dead leaves, lined with fibrous roots, and placed in low bushes,

orange-trees, &c. He adds that the nests vary much in appearance, some being plain, clumsy structures, others being prettily ornamented with leaves and lichens. The eggs are similar to those of *R. flammigerus*, but smaller, pale greenish-blue, sparsely spotted with large dark brown spots and blotches [9]. Wood found it abundant on the Rio Truando, always frequenting a particular kind of tree which grew along the banks of the streams, on the fruit of which it fed [6].

3. Rhamphocœlus dimidiatus.

Ramphocelus dimidiatus, Lafr. Mag. Zool. 1837, cl. ii. t. 81 [1]; Scl. P. Z. S. 1856, pp. 129 [2], 142 [3]; 1858, p. 73 [4]; Cassin, Pr. Ac. Phil. 1860, p. 141 [5]; Lawr. Ann. Lyc. N. Y. vii. p. 331 [6]; viii. p. 175 [7]; Scl. & Salv. P. Z. S. 1864, p. 350 [8]; 1868, p. 627 [9]; 1879, p. 501 [10]; Salv. P. Z. S. 1867, p. 138 [11]; 1870, p. 187 [12]; Cat. Strickl. Coll. p. 191 [13]; Wyatt, Ibis, 1871, p. 326 [14].

Capite, dorso antico, tectricibus alarum minoribus et gutture obscure coccineis, plumis ad basin nigricantibus; dorso postico, pectore et hypochondriis coccineis, pennis medialiter albis; abdomine medio, tibiis, alis et cauda nigricantibus; rostro plumbeo; pedibus nigricanti-plumbeis. Long. tota 6·5, alæ 3·1, caudæ 3·1, rostri a rictu 0·75, tarsi 0·9.

♀ mari similis, sed multo obscurior, capite toto et gula fuscescentioribus, abdomine toto sordide coccineo. (Descr. maris et feminæ ex Panama. Mus. nostr.)

Hab. Nicaragua ? (*Delattre* [2]); Panama, Chiriqui (*Bridges* [3]), David (*Hicks* [7]), Mina de Chorcha [12], Castillo [12], Chitra [12], Cordillera del Chucu [12], Calovevora [12], Santa Fé [11] (*Arcé*), Lion Hill (*M'Leannan* [6 8]), Paraiso Station (*Hughes*), Panama (*A. H. Markham*), Turbo (*Wood* [5]).—Colombia [1 2 10 14]; Ecuador ? [4]; Venezuela [9].

The range of this species is a little more extensive in Central America than that of *Rhamphocœlus icteronotus*, as it is found abundantly at Chiriqui, where *R. passerinii* occurs in place of *R. icteronotus*. It has been recorded from Nicaragua [2] on Delattre's authority, but this statement has not been confirmed by subsequent travellers; still less that of Lafresnaye that the bird occurs in Mexico! [1]. As it is absent from Costa Rica, it seems probable that it has no such further extension of its range.

In South America it is confined to the north-western part of the continent, occurring near Santa Marta and Cartagena [1] and also in the State of Antioquia as well as in Western Venezuela. Two specimens in the Strickland Collection at Cambridge are of the usual make-up of the trade skins of Bogota [13], but we have not seen others from this source. It has been recorded from the valley of the Napo in Ecuador, as a female specimen is thus named in Mr. Sclater's list of the birds of that region published in 1858 [4]. We have of late years received very extensive collections from Eastern Ecuador, but in none have we found specimens of *R. dimidiatus*; so that we think it possible that the bird so named may have been a female example of *R. luciani*, which occurs in Peru, as will be seen below.

Salmon obtained the nest of *R. dimidiatus* in Antioquia, which he says is placed in low bushes, and is composed of small twigs, dead leaves, moss, and lichens. The eggs

are pale greenish blue, spotted and streaked with large spots and fine lines of dark brown [10]. Mr. Wyatt also obtained the nest and eggs of this Tanager, and his description of them agrees in the main with that of Salmon [14]. Wood, who observed it at Turbo in the isthmus of Darien, says that it is abundant in April in the bushes and low trees in the drier parts of the forest. He adds that it is solitary, but constantly seen, and heard only to utter a single chirp [5]. Of its habits in Central America nothing has been recorded.

4. **Rhamphocœlus luciani.**

Ramphocelus luciani, Lafr. Rev. Zool. 1838, p. 54 [1]; Mag. Zool. 1839, Ois. t. 2 [2]; Scl. P. Z. S. 1856, p. 130 [3]; Lawr. Ann. Lyc. N. Y. vii. p. 331 [4].

Ramphopis melanogaster, Sw. An. in Menag. p. 359 [5] ?.

Similis *R. dimidiato* sed dorso antico et tectricibus alarum minoribus multo nigricantioribus, capite quoque obscuriore coccineo, differt.

♀ a femina *R. dimidiati* eodem modo differt loris et genis rubidioribus. (Descr. maris et feminæ ex Peruvia orientali. Mus. nostr.)

Hab. Panama, Lion Hill (*M'Leannan* [4]).—Colombia [2]; Peru [5].

Of this species, which seems quite distinct from *R. dimidiatus*, we know but little. It was originally described by Lafresnaye from specimens in his collection obtained near Cartagena in Colombia [2]; and these were the only ones Mr. Sclater had seen when writing his synopsis of Tanagers in 1856.

In 1861 Mr. Lawrence described two specimens of this species sent him by M'Leannan from Panama, and these Salvin had an opportunity of examining in 1874, and of satisfying himself of the correctness of Mr. Lawrence's determination.

We ourselves have never obtained Central-American examples, but in 1869 we secured two from a small collection formed by Mr. Farris in Eastern Peru, and these we have described above. As the type of Swainson's *Ramphopis melanogaster* [5] also came from Peru, we think it more probably belongs to this species than to *R. dimidiatus*, with which it has usually been placed.

Though like *R. dimidiatus* in the distribution of its colours, the darker back and wing-coverts as well as the darker head render *R. luciani* not difficult to distinguish.

5. **Rhamphocœlus uropygialis.** (Tab. XVIII. fig. 2.)

Ramphocelus uropygialis, Bp. Rev. Zool. 1851, p. 178 [1]; Scl. P. Z. S. 1856, p. 130 [2].

Ramphocelus affinis, Less. Rev. Zool. 1840, pp. 1 [3], 133 [4] ?

Velutino-niger, dorso medio coccineo tincto; cervice et pectore antico obscure coccineis, pennis ad basin nigris; uropygio, hypochondriis et crisso vivide coccineis, ventre medio et tibiis nigerrimis; rostro nigro, mandibulæ basi argentescenti-plumbea; pedibus nigris. Long tota 6·8, alæ 3·3, caudæ 3·1. (Descr. exempl. typ. ex Guatemala. Mus. nostr.)

Hab. Guatemala (fide *Bonaparte* [1]).

It is singular that the type specimen still remains the only accessible one of this

species. Salvin once found in a collection of Guatemalan birds what he believed to be a second example of this bird, but it was not to be obtained, and has since passed out of sight.

We are quite ignorant to what part of Guatemala this fine species belongs, and the fact of its not occurring in the large collections made in that country shows that it, like *Calliste cabanisi*, must inhabit a limited district seldom if ever visited by native collectors.

Lesson's name, *R. affinis*, may belong to this species. The habitat of this bird was first stated to be Mexico [3], but afterwards Colombia [4].

The species is a very distinct one, as the figure now given of the type, in Mr. Sclater's collection, will show.

Note.—*Rhamphocœlus nigrigularis* of the region of the upper Amazons has been mentioned by Bonaparte (Consp. Av. i. p. 242) as occurring in Mexico, an obvious error.

PHLOGOTHRAUPIS.

Phlogothraupis, Sclater & Salvin, Nomencl. Av. Neotr. p. 155 (1873). (Type *Tanagra sanguinolenta*, Lesson.)

The single species contained in this genus was for a long time placed in *Rhamphocœlus*, with which it has much in common. The structure of the bill, however, warrants its separation, as it has none of the peculiar swelling towards the base of the mandible, which is so marked a feature in *Rhamphocœlus*. The sexes, too, in *Phlogothraupis* are coloured exactly alike, and this is not so in the allied genus.

The range of *P. sanguinolenta*, as will be seen below, is restricted to Central America and Southern Mexico. The form is, however, absent from the State of Panama.

1. Phlogothraupis sanguinolenta.

Tanagra (*Tachyphonus*) *sanguinolentus*, Less. Cent. Zool. p. 107, t. 39 [1].

Ramphocelus sanguinolentus, Scl. P. Z. S. 1856, pp. 132 [2], 303 [3]; 1859, pp. 364 [4], 377 [5]; Scl. & Salv. Ibis, 1859, p. 16 [6]; P. Z. S. 1867, p. 278 [7]; 1870, p. 836 [8]; Moore, P. Z. S. 1859, p. 59 [9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [10]; Lawr. Ann. Lyc. N. Y. ix. p. 99 [11]; v. Frantz. J. f. Orn. 1869, p. 299 [12]; Salv. Ibis, 1872, p. 316 [13].

Phlogothraupis sanguinolenta, Scl. & Salv. Nomencl. Av. Neotrop. p. 155 [14].

Velutino-nigra, pileo postico cum torque cervicali et pectore conjunctis necnon tectricibus subalaribus, crisso et uropygio coccineis; rostro plumbescenti-albo; pedibus nigricanti-fuscis. Long. tota 7·2, alæ 3·5, caudæ 3·3, rostri a rictu 0·8, tarsi 0·8.

♀ mari omnino similis. (Descr. maris et feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico [1], hot region of Vera Cruz (*Sumichrast* [10], *le Strange*), Valle Real (*Deppe* [2]), Cordova (*Sallé* [3]), Jalapa (*de Oca* [4]), Playa Vicente (*Boucard* [5]); British Honduras, Belize (*Blancaneaux*), Belize river (*O. S. & F. D. G.*); Guatemala, Peten (*Leyland* [9]), Coban (*Delattre* [2]), Achil near Coban, Choctum, Cahabon, Yzabal (*O. S. & F. D. G.*); Honduras, Chamelican river (*Dyson* [2 6]), San Pedro

(*G. M. Whitely* [8]), Omoa (*Leyland* [9]); Nicaragua, Mosquito coast (*Wickham* [7]), Chontales (*Belt* [13]); Costa Rica, Orosi, San Carlos, Sarapiqui (*v. Frantzius* [12]), Navarro (*Cooper* [11]), Angostura (*Carmiol* [11]), Tucurriqui (*Arcé*).

This beautiful species is restricted in its range to the hot low-lying forests of the eastern side of the Cordillera from Southern Mexico to Costa Rica. Occasionally, Sumichrast tells us [10], it ascends the mountains to an elevation of nearly 4000 feet, in the State of Vera Cruz; and we ourselves observed it in the forest-country north of Coban in Vera Paz, at a height of between 3000 and 4000 feet. At Choctum, however, we found it more numerous than elsewhere, a forest-region lying at an elevation of about 1200 feet. Here it frequented the openings in the forest and the sides of rivers and streams, keeping to the lower branches of trees and shrubs rather than to the tree-tops.

Southwards of Guatemala we have traced this species through Honduras and Nicaragua to Costa Rica, but always on the eastern side of the mountains. It is thus a species peculiar to our region.

The sexes of *P. sanguinolenta* are coloured exactly alike; in *Rhamphocœlus* the female is always a much duller coloured bird, and not unfrequently very different from the male.

PYRANGA.

Pyranga, Vieillot, Anal. p. 32 (1816) (type *Tanagra rubra,* Linn.); Scl. P. Z. S. 1856, p. 123.
Phœnisoma, Sw. Classif. B. ii. p. 284 (1837).

Sixteen species are now included in this genus, of which no less than ten are found within our limits. Four of these are migratory birds, which spend the summer in North America and pass their winter in Mexico and Central America, some of them travelling far beyond into the southern continent. *P. hepatica*, a species of southern type, is also a bird of Mexico which passes the frontier of the United States. The peculiar species of our territory are—*P. erythrocephala* of the highlands of Southern Mexico, *P. roseigularis* of Northern Yucatan, *P. figlina* of British Honduras, and *P. erythromelæna* and *P. bidentata*, both of which enjoy a wide range from Mexico to Panama, but do not pass southwards beyond our limits. Only one southern species, *P. testacea*, extends its range into Central America, as far as Nicaragua.

Of the five remaining species, two, viz. *P. hæmalea* and *P. saira*, are close relations of *P. testacea* in Guiana and Brazil respectively. *P. azaræ* of Paraguay and Bolivia is closely allied to *P. hepatica*. *P. ardens* is a southern form, in northern and north-western South America, of *P. erythromelæna*; and *P. rubriceps*, the only well-marked species of *Pyranga* in South America, is found just beyond our border in Colombia. Thus it will be seen that, though one of the most widely distributed genera of Tanagers, its focus is Mexico and Central America. At the same time, it is the only genus of Tanagers found in North America, where, however, four of the five species are strictly migratory birds.

The genus *Pyranga* is usually made to include several rather diverse forms, but these are perhaps scarcely separable. *P. erythromelæna* and *P. erythrocephala* are most aberrant, and we are not sure that they have not a closer relationship to one another than is here admitted, the form of the bill being very similar in both birds.

The notch or dentate process on the middle of the cutting-edge of the mandible is a variable feature in this genus, and, though of value in a specific sense, hardly serves to group the different species.

The bill in *Pyranga* is stout, subconical, the culmen more or less depressed, and the cutting-edge of the mandible rather strongly curved in *P. erythromelæna* and its allies, less so in *P. rubra*; there is nearly always a projection like a tooth in the middle. In *P. æstiva* the edge is simple, but a slight wave in the curve sometimes shows where it is present in other species. In *P. bidentata*, *P. hepatica*, and *P. testacea* it is most developed, and in some there is an indication of a second projection on the proximal side of the large one.

The wings of *Pyranga* are well developed and (especially in the migratory species) rather long, the second primary being usually the longest, but the first, second, and third are nearly equal. In *P. roseigularis* the primaries are short and the wing rounded, the second, third, and fourth quills being nearly equal. The tail is of moderate length, nearly square at the end or but slightly forked. The tarsi and toes are of moderate size and suitable for birds of arboreal habits, which all the species of *Pyranga* have.

A. *Alæ haud fasciatæ.*

a. *Alæ nigræ.*

1. Pyranga rubra.

Tanagra rubra, Linn. Syst. Nat. i. p. 314[1].

Pyranga rubra, Gosse, B. Jam. p. 235[2]; Scl. P. Z. S. 1856, p. 123[3]; 1858, p. 73[4]; Jones, Nat. Berm. p. 31[5]; Scl. & Salv. P. Z. S. 1864, p. 350[6]; 1879, pp. 501[7], 601[8]; Dresser, Ibis, 1865, p. 479[9]; Lawr. Ann. Lyc. N. Y. viii. p. 331[10]; ix. p. 99[11]; v. Frantz. J. f. Orn. 1869, p. 299[12]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[13]; Salv. P. Z. S. 1870, p. 187[14]; Ibis, 1872, p. 316[15]; Baird, Brew. & Ridgw. N. Am. B. i. p. 435[16]; Tacz. P. Z. S. 1874, p. 514[17]; Gundl. Orn. Cub. p. 73[18].

Coccinea, alis caudaque nigris, subalaribus albis; rostro pallide corneo (ave vivo viridi!) ad basin obscuriore; pedibus obscure corylinis (ave vivo obscure cæruleis). Long. tota 6·3, alæ 3·8, caudæ 2·7, rostri a rictu 0·8, tarsi 0·8. (Descr. maris ex Lion Hill, Panama. Mus. nostr.)

♀ olivacea, subtus flavicans, alis et cauda fuscis. (Descr. feminæ ex Washington Smiths. Inst., no. 28342. Mus. nostr.)

Hab. North America, eastern Province[16], Texas[9], Bermuda[5].—Mexico (*Bullock*[3]), State of Vera Cruz (*Sumichrast*[13]); Guatemala, Vera Paz (*Mus. nostr.*); Nicaragua, Chontales (*Belt*[15]); Costa Rica, San Jose (*v. Frantzius*[11 12]), Irazu (*Rogers*); Panama, Calovevora (*Arcé*[14]), Lion Hill (*M'Leannan*[6 10]).—Colombia[3 7]; Ecuador[4]; Peru[17]; Bolivia[8]; Antilles, Cuba[18], Jamaica[2].

Sumichrast includes this species as one of the three migratory Tanagers of the State of Vera Cruz [13], and Mr. Sclater gives it a Mexican habitat on the authority of Bullock [3]; but we have no evidence of our own to bring forward as to its occurrence in that country. In Yucatan, however, Mr. Gaumer says it is common near the town of Merida. In Guatemala it must be considered a very rare bird, for we never met with it ourselves, and only since our return did we find a specimen of a young male in a collection made in Vera Paz.

As we pass further south it has been more frequently noticed, and we have specimens taken at various points, from Nicaragua, Costa Rica, and Panama, and thence southwards as far as Bolivia.

The line of migration of this species conforms to a great extent with that of several species of the eastern portion of the United States. It is merely recorded from Mexico and Guatemala, becomes common in the southern parts of the great isthmus, and thence passes into western South America. A very similar line is taken by *Turdus aliciæ*, *Helminthotherus vermivorus*, and *Geothlypis philadelphia*.

In North America *Pyranga rubra* is a familiar summer bird in the eastern province, as far north as Winnipeg and westwards to Texas [9]. It builds late in May or early in June, making its nest in the horizontal branch of a forest-tree or occasionally in an orchard. The nest is nearly flat, with but a slight depression in the middle. Its base is loosely constructed of coarse stems of vegetables, strips of bark, and rootlets; upon this is wrought a neater framework, within which is a lining of long slender fibrous roots, mingled with stems of plants and a few strips of fine inner bark. The eggs vary from greenish blue to dull white. The spots vary in size and are more or less confluent, and are chiefly of a reddish or rufous-brown intermingled with a few spots of a brownish and obscure purple [16].

Concerning the changes of plumage of this species, Brewer remarks [16] that "early in August the male begins to moult, and, in the course of a few days, dressed in the greenish livery of the female, he is not distinguishable from her or his young family. In this humble garb they leave us, and do not resume their summer plumage till just as they are re-entering our southern borders, when they may be seen in various stages of transformation." Unfortunately most of our southern specimens are without record of when they were shot; but three of our Central-American examples are young males in various stages of change, one from Calovevora being in almost full plumage. Our Bolivian example is also in change of feather; but all the rest of our specimens are adult males in their full red feathering, and one of them, from Remedios in Colombia, was shot, according to Salmon's note, in September 1878. According to Brewer we ought not to find birds in breeding dress south of the United States at all, still less in September!

In Cuba Dr. Gundlach found *Pyranga rubra* under precisely similar circumstances to

P. æstiva, that is on passage in autumn and spring but not during the winter. In Jamaica it is supposed to have been introduced, but its occurrence in the island in a wild state is extremely probable. Several specimens were obtained in Bermuda in April 1850[5].

b. *Alæ extus rufescentes.*

2. Pyranga æstiva.

Tanagra æstiva, Gm. Syst. Nat. i. p. 889[1]; Licht. Preis-Verz. mex. Vög. p. 2 (J. f. Orn. 1863, p. 56)[2].

Pyranga æstiva, Bp. P. Z. S. 1837, p. 116[3]; Scl. P. Z. S. 1856, pp. 123[4], 142[5], 303[6]; 1859, pp. 364[7], 377[8]; 1860, p. 293[9]; Baird, Mex. Bound. Surv. ii., Birds, p. 11[10]; Scl. & Salv. Ibis, 1859, p. 15[11]; P. Z. S. 1864, p. 350[12]; 1870, p. 836[13]; 1879, p. 502[14]; Jones, Nat. Berm. p. 31[15]; Cassin, Pr. Ac. Phil. 1860, p. 140[16]; Taylor, Ibis, 1860, p. 111[17]; Lawr. Ann. Lyc. N. Y. vii. p. 297[18]; viii. p. 175[19]; ix. p. 99[20]; Bull. U. S. Nat. Mus. no. 4, p. 19[21]; Dresser, Ibis, 1865, p. 479[22]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[23]; Wyatt, Ibis, 1871, p. 326[24]; Baird, Brew. & Ridgw. N. Am. B. i. p. 441[25]; Salv. P. Z. S. 1867, p. 139[26]; 1870, p. 187[27]; Ibis, 1872, p. 316[28]; Cat. Strickl. Coll. p. 191[29]; Gundl. Orn. Cub. p. 72[30]; Salv. & Godm. Ibis, 1879, p. 200[31]; 1880, p. 121[32]; Boucard, P. Z. S. 1883, p. 443[33].

Phœnisoma æstiva, Cab. J. f. Orn. 1860, p. 329[34].

Pyranga livida, Sw. Phil. Mag. new ser. i. p. 438[35].

Rosaceo-coccinea, dorso toto, alis extus et cauda paulo obscurioribus, rostro pallide corneo, tomiis et apice albicantibus; pedibus corylinis. Long. tota 6·5, alæ 3·6, caudæ 2·8, rostri a rictu 0·85, tarsi 0·7. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

♀ olivacea subtus flavescens, pectore et hypochondriis obscurioribus. (Descr. feminæ ex Rio Dulce, Guatemala. Mus. nostr.)

Hab. North America, Eastern Province[25], Texas[22], Bermuda[15].—Mexico, Rio Nasas, Nuevo Leon (*Couch*[10]), Real del Monte (*Bullock*[35]), Yuantepec (*Deppe*[2]), Tierra Caliente and Templada (*le Strange*), State of Vera Cruz (*Sumichrast*[23]), Cordova (*Sallé*[6]), Jalapa (*de Oca*[7]), Playa Vicente (*Boucard*[8]), Chihuitan and Santa Efigenia (*Sumichrast*[21]), Valladolid in Yucatan (*Gaumer*[33]); Guatemala (*Velasquez de Leon*[3], *Constancia*[29]), Rio Dulce[11], Yzabal[11], Quirigua[11], and road to Guatemala[11], Iguana, Dueñas[11], Savana Grande, Volcan de Agua, Retalhuleu, San Gerónimo, Tactic, Coban, Choctum (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely*[13]), Comayagua (*Taylor*[17]); Nicaragua, Chontales (*Belt*[28]); Costa Rica (*v. Frantzius*, *Hoffmann*[34]), Turrialba, Atirro, Grecia, San José, Santa Rosa, Angostura (*Carmiol*), San Mateo, Navarro (*Cooper*), Irazu (*Rogers*), Nicoya (*Arcé*); Panama, Chiriqui (*Bridges*[5]), David (*Hicks*[19]), Volcan de Chiriqui, Vivala, Boquete de Chitra[27], Chitra[27], Cordillera del Chucu[27], Calovevora[27], Santa Fé[26] (*Arcé*), Lion Hill (*M'Leannan*[12 18]), Chepo (*Arcé*), Turbo (*Wood*[16]).—Colombia[14 24 31 32]; Ecuador[9]; Peru[25]; Guiana; Antilles, Cuba[30].

The Summer Redbird, as this species is called in North America, is one of the most familiar of the Tanagers of that continent, where it arrives from its winter quarters in April and leaves again in September, breeding in the interval in most of the Southern States, and as far north as Washington, beyond which it can only be accounted a straggler. Westwards it is common in the valley of the Mississippi, and thence extends to the border of the plains [24]. In winter it spreads over eastern and southern Mexico, and thence over the whole of Central America, and passes southwards through Colombia and Ecuador to Peru, keeping chiefly to the slopes of the Andes. We have a single female specimen from Roraima in Guiana, shot by Mr. H. Whitely in January 1881; but this is all we know of the bird so far to the eastward in the southern continent, though Buckley obtained it at Sarayacu in Eastern Ecuador; and the National Museum at Washington has it from the sources of the Huallaga in Peru [25].

As will be seen from our list of localities given above, *Pyranga æstiva* is a very common bird in Guatemala, where it is found nearly everywhere, from the sea-level to a height of about 5000 feet. It is an inhabitant of the more open country rather than the forests, but may be seen on the edges of clearings and open places of the kind; the brilliant plumage of the male rendering it a most conspicuous bird. In Cuba Dr. Gundlach notices the appearance of *P. æstiva* during the spring and autumn migrations and its absence from the island in the winter. During its stay it is usually seen in flocks feeding upon the fruit of certain trees [29].

The authors of the 'History of the North-American Birds' speak of the Central American and Colombian birds being purer in colour than those from the States; but, with a large series before us, we fail to trace any law of this kind, and we take it the southern birds are but the northern ones in their winter quarters, and that any difference of colour must be due to season alone.

Brewer describes a nest from Louisiana as having a diameter of four inches and a depth of two inches, the cavity shallow, being hardly more than half an inch. The structure is well and strongly put together, though somewhat openly woven; the materials are fragments of plants, catkins, leaves, stems, and grasses; the inner portion is of fine dry grasses, which are more elaborately woven than the outer structure. The eggs are bright light emerald-green, spotted, marbled, dotted and blotched with various shades of lilac, brownish-purple, and dark brown, which are equally diffused over the whole egg [24].

Several specimens of this Tanager were obtained in Bermuda in April 1850 [15].

3. **Pyranga cooperi.**

Pyranga cooperi, Ridgw. Pr. Ac. Phil. 1869, p. 130 [1].

Pyranga æstiva, var. *cooperi*, Baird, Brew. & Ridgw. N. Am. B. i. p. 444 [2]; Lawr. Mem. Bost. Soc. N. H. ii. p. 273 [3].

Pyranga æstiva, Finsch, Abh. nat. Ver. z. Bremen, i. p. 338 [4].

P. æstivæ similis sed major et rostro longiore, capite, crisso et corpore subtus clarioribus distinguenda. Long. tota 8·0, alæ 4·2, caudæ 3·5, rostri a rictu 1·0. (Descr. maris ex Los Pinos, New Mexico. Mus. Nat. U. S.) Femina quoque multo magis flavescens differt.

Hab. North America, Upper Rio Grande and Colorado region [2].—Mexico, Mazatlan (*Grayson* [1 3 4]), Presidio near Mazatlan (*Forrer*), Colima [2].

With the aid of the types of this bird before us, kindly lent us by the authorities of the United States National Museum, we have no difficulty in recognizing it as distinct from *P. æstiva*, the characters having been carefully drawn by Mr. Ridgway when first describing it [1].

The range of *P. cooperi* appears to be very limited. Dr. Cooper found it abundant near Fort Mohave in the Colorado valley, and Dr. Coues at Los Pinos in New Mexico. Thence it has been traced southward to Mazatlan [3 4], whence we have a fully adult male from Mr. Forrer. The most southern point of its range mentioned by Brewer is Colima, but on whose authority is not stated [3].

Grayson says it makes its appearance at Mazatlan during the winter months, and he saw it late in the spring, but not in summer; but it was not common [3].

4. Pyranga hepatica.

Pyranga hepatica, Sw. Phil. Mag. new ser. i. p. 438 [1]; Scl. P. Z. S. 1856, p. 124 [2]; 1857, p. 213 [3]; 1858, p. 303 [4]; 1859, pp. 364 [5], 377 [6]; 1864, p. 173 [7]; Baird, Birds N. Am. p. 302, t. 31 [8]; Scl. & Salv. 1859, p. 15 [9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [10]; Ridgw. Pr. Ac. Phil. 1869, p. 132 [11]; Lawr. Mem. Bost. Soc. N. H. ii. p. 274 [12]; Bull. U. S. Nat. Mus. no. 4, p. 19 [13]; Dugès, La Nat. i. p. 140 [14]; Baird, Brew. & Ridgw. N. Am. B. i. p. 440 [15]; Salv. Cat. Strickl. Coll. p. 192 [16].

Phœnicosoma hepatica, Cab. Mus. Hein. i. p. 25 [17].

Pyranga azaræ, Woodh. in Sitgreave's Expl. Zuni, p. 82 [18] (nec d'Orb.).

Tanagra dentata, Licht. Mus. Berol. (fide Cabanis) [19].

Supra cinerascenti-rubra, capite summo et uropygio rufescentioribus, genis dorso concoloribus, alis et cauda fuscis, illis intus rosaceo-albis extus rubro limbatis; subtus coccinea, hypochondriis fuscescentibus; rostro nigricanti plumbeo, pedibus corylinis. Long. tota 7·0, alæ 4·0, caudæ 3·2, rostri a rictu 0·8, tarsi 0·9. (Descr. maris ex Villa Alta, Mexico. Mus. nostr.)

♀ olivacea, pileo flavescentiore, superciliis indistinctis et corpore subtus medialiter flavis, hypochondriis olivaceis. (Descr. feminæ ex Mexico. Mus. nostr.)

Hab. North America, New Mexico [8 15 18], Arizona.—Mexico, Real del Monte (*Bullock* [1]), Guanajuato (*Dugès* [14]), valley of Mexico (*White* [7]), Sierra Madre (*Grayson* [12]), hot, temperate, and alpine regions of Vera Cruz (*Sumichrast*), Jalapa [17] (*de Oca* [5]), Orizaba (*Botteri* [2 3]), La Parada [4], Talea [6], Villa Alta [6], Choapam [6] (*Boucard*), Guichicovi and Gineta Mountains (*Sumichrast* [13]); Guatemala (*Constancia* [16], *Skinner* [9]).

This species was one of Bullock's discoveries described by Swainson in 1827, in his well-known paper [1]. From Real del Monte, where it was found, it has been traced through-

out Mexico northwards beyond the frontier into New Mexico and Arizona, and southwards into Guatemala. In the latter country, however, it is either a very local or a very rare bird, as we never obtained specimens ourselves, and the only one we possess has no precise locality attached to it, nor yet has one in the Strickland Collection at Cambridge received from Constancia [16].

In Mexico, Sumichrast speaks of it as one of the most widely distributed of the Tanagers, being found from the coast of the Gulf of Mexico to a height of nearly 10,000 feet above the sea. Grayson found *P. hepatica* quite common in the Sierra Madre between Mazatlan and Durango in December, but he never met with it in the Tierra Caliente proper. It seemed to him a mountain species [12].

P. hepatica may be distinguished from the other red *Pyrangæ* except *P. azaræ* of Bolivia, Paraguay, and the Argentine Republic, by the grey tint of the back. Like *P. testacea* it has the prominent notch in the middle of the edge of the maxilla on either side, but that species has a rich brick-red back without any admixture of grey. From *P. azaræ* the difference is slight and consists chiefly in the cheeks being greyish like the back, instead of red. The colour of the wings beneath, too, is whiter instead of being rosy. These differences are very slight, and were the birds found in contiguous areas, the propriety of separating them might well be questioned; but divided as they are by several thousand miles, these small distinctions acquire a greater value.

5. **Pyranga testacea.** (Tab. XIX. figg. 1 ♂, 2 ♀.)

Pyranga testacea, Scl. & Salv. P. Z. S. 1868, p. 388 [1]; P. Z. S. 1879, p. 502 [2]; Ridgw. Pr. Ac. Phil. 1869, p. 133 [3]; Salv. P. Z. S. 1870, p. 187 [4]; Zeledon, Cat. Aves, Costa Rica, p. 7 [5].

Testaceo-rubra unicolor, subtus clarior; loris obscure cinereis, alis fuscis intus rosaceis extus dorsi colore limbatis, cauda rufo-fusca; rostro nigricanti-corneo dente maxillari distincto, pedibus obscure corylinis. Long. tota 7·0, alæ 3·6, caudæ 3·1, rostri a rictu 0·9, tarsi 0·85. (Descr. maris ex Chitra, Panama. Mus. nostr.)

♀ flavicanti-olivacea subtus aureo-flava, pectore et hypochondriis olivaceo perfusis, subalaribus flavis. (Descr. feminæ ex Calovevora, Panama. Mus. nostr.)

Hab. Nicaragua, Chontales (*Belt*); Costa Rica (*Van Patten*, *Zeledon* [5]), Angostura [3 6]; Panama, Chitra [1 4], Boquete de Chitra [4], Calovevora [1 4], Santa Fé [7] (*Arcé*).—Colombia [2]; Ecuador; Bolivia.

The first specimen we received of this species, a male in transition plumage, was referred to *Pyranga hepatica* [7]. The subsequent receipt of adult birds of both sexes at once showed its distinctness from that species. The upper back is of a rich brick-red colour without any admixture of grey. The red of the under surface is also of a much deeper tint than in *P. hepatica*. In the female there is no grey shade on the back, and no yellow on the forehead and lores as in the allied species.

Described originally from the State of Panama, *P. testacea* has now been traced southwards to Bolivia. Bolivian and Ecuadorian examples are of a rather brighter shade, but hardly to be distinguished on that account.

P. azaræ of Bolivia and Paraguay is more nearly related to *P. hepatica* than to *P. testacea*, having the middle of the back tinged with grey. But the bird really most nearly allied to the present one is that recently described by us from British Guiana as *P. hæmalea*, which, however, is of a still deeper almost vinous red, and the throat and middle abdomen are lighter, and contrast with the chest and flanks.

The distinctions between all these birds are no doubt slight, but the lines dividing the species are not drawn so closely as in the allied genus *Phœnicothraupis*, and division brings out more plainly the peculiarities of their geographical distribution.

Of the habits of this species we know but little, but it seems to frequent the lower ranges of mountainous regions.

The Plate represents a male and female from the State of Panama, types of the original description.

6. **Pyranga figlina**, sp. n.

Pyranga hepatica, Salv. P. Z. S. 1867, p. 139 [1] (nec Sw.).

Pyranga saira var. *testacea*, Baird, Brew. & Ridgw. N. Am. B. i. p. 434 [2] (nec Scl. & Salv.).

P. testaceæ similis, sed colore rubro omnino sordidiore, tectricibus auricularibus fuscis. (Descr. maris ex Manati river, British Honduras. U. S. Nat. Mus. 74693.)

♀ quoque femina *P. testaceæ* sordidior, abdomine imo vix flavescente. (Descr. feminæ ex Poctun, Guatemala. Mus. nostr.)

Hab. British Honduras, Manati river (*Dr. Berendt*); Guatemala, pine-ridge of Poctun (*O. S. & F. D. G.* [1]).

Mr. Ridgway has kindly sent us an adult male of this *Pyranga*, which, on comparison with our series of *P. testacea*, presents differences which render its separation necessary. A female long in our collection, and supposed to belong to *P. hepatica* [1], we now place here, it being evidently a female of the British-Honduras bird.

The red colour of the plumage in *P. figlina* is not nearly so bright as in *P. testacea*, having a browner tint; the female, too, is a much duller-coloured bird. Both have brownish ear-coverts, a character of *P. hepatica*, from which, however, this bird differs in the coloration of the back.

7. **Pyranga roseigularis.**

Pyranga roseigularis, Cabot, Bost. Journ. N. H. v. p. 416 [1]; Scl. P. Z. S. 1857, p. 6 [2]; Ibis, 1873, p. 125. t. 3 [3]; Lawr. Ann. N. Y. Ac. Sc. ii. p. 245 [4]; Boucard, P. Z. S. 1883, p. 443 [5].

Fusco-cinerea, dorso saturatiore rufescente tincto, loris, ciliis, genis et pectore sordide flavo indutis, subtus cinerea medialiter dilutior; pileo toto, alis, tectricibus supracaudalibus, et cauda fusco-rufis, gula pallide rosacea, subalaribus et crisso dilutioribus. Long. alæ 3·05, caudæ 2·75, tarsi 0·80. (Descr. exempl. typ. apud Ridgway, Ibis, 1873, p. 125. Mus. Dr. Cabot.)

♀ mari similis sed capite summo olivaceo et gula flavida distinguenda. (Descr. feminæ ex Izalam, Yucatan. Mus. nostr.)

Hab. Mexico, Yucatan, between Chemex and Yalahoo (*Cabot* [1]), Izalam (*Gaumer* [5]).

For many years the only known specimen of this peculiar species was the type obtained by Dr. S. Cabot in Yucatan when he accompanied Stephens during his celebrated expedition to that country. This type was examined by Mr. Sclater in 1856 [2], by Mr. Ridgway in 1873 [3], and by Salvin in the following year; all these ornithologists agreeing as to the distinctness of the bird from all known species of *Pyranga*. During the last few years, Mr. G. F. Gaumer, who has been making collections of birds in Northern Yucatan, has succeeded in obtaining additional specimens, including the female, which was not previously known. This was recently described by Mr. Lawrence, and, through M. Boucard's kindness, one has passed into our possession.

The acquisition of the female proves still further the great peculiarity of the bird, which in Mr. Ridgway's synopsis of the genus *Pyranga* occupies a distinct section.

P. roseigularis has apparently a very limited range, which is restricted to Northern Yucatan, beyond which it has not yet been traced.

c. *Alæ extus olivaceæ.*

8. **Pyranga erythrocephala.**

Spermagra erythrocephala, Sw. Phil. Mag. new ser. i. p. 437 [1].

Pyranga erythrocephala, DuBus, Esq. Orn. t. 32 [2]; Bp. Rev. Zool. 1851, p. 178 [3]; Scl. P. Z. S. 1856, p. 125 [4]; 1859, p. 377 [5]; 1864, p. 173 [6]; Dugès, La Nat. i. p. 140 [7].

Pyranga cucullata, DuBus, Bull. Ac. Brux. xiv. pt. 2, p. 105 [8].

Olivaceo-viridis, subtus flavescens, capite toto et gula rosaceo-coccineis, illo saturatiore, loris et ciliis nigris, tectricibus auricularibus sericeo-rosaceis; rostro et pedibus nigricanti-corneis. Long. tota 6·0, alæ 3·0, caudæ 2·9, rostri a rictu 0·6, tarsi 0·8. (Descr. maris (?) ex Mexico. Mus. nostr.)

Hab. Mexico [2 3], Temiscaltepec (*Bullock* [1]), Guanajuato (*Dugès* [7]), valley of Mexico (*White* [6]), Juquila, Totontepec (*Boucard* [5]).

This Tanager has a very limited range confined to the tablelands of Mexico from Guanajuato in the north to Juquila and Totontepec in the south. It was not noticed by Sumichrast in the State of Vera Cruz nor yet anywhere on the west coast.

P. erythrocephala was first discovered by Bullock at Temiscaltepec and described by Swainson in 1827. A second name, *P. cucullata*, was given to it twenty years afterwards by DuBus. The same author figured it under Swainson's name in his 'Esquisses Ornithologiques;' but the Plate representing it was probably never actually issued, and no letterpress accompanies it in the copies of this work which we have seen.

Of the habits of this species nothing has been recorded, except a note by Bullock that it "feeds on insects, but is fond of beef &c. Two were shot on the meat at the back of my house!" Specimens of it are rarely seen in collections.

B. *Alæ bifasciatæ.*

9. Pyranga erythromelæna.

Tanagra erythromelas, Licht. Preis-Verz. mex. Vög. p. 2; J. f. Orn. 1863, p. 57 [1]; Scl. P. Z. S. 1856, pp. 126 [2], 303 [3]; 1859, p. 364 [4]; 1864, p. 173 [5]; Scl. & Salv. Ibis, 1859, p. 15 [6]; Salv. Ibis, 1861, p. 147 [7]; P. Z. S. 1870, p. 187 [8]; Cat. Strickl. Coll. p. 192 [9]; Lawr. Ann. Lyc. N. Y. ix. p. 99 [10]; v. Frantzius, J. f. Orn. 1869, p. 299 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [12].

Pyranga leucoptera, Trudeau, Journ. Ac. Phil. viii. p. 160 [13].

Pyranga bivittata, Lafr. Rev. Zool. 1842, p. 70 [14].

Phœnicosoma bivittata, Cab. Mus. Hein. i. p. 24 [15].

Coccinea, dorso obscurior; fronte, capitis lateribus, mento summo, alis et cauda nigris; alis albo bivittatis, subalaribus albis; rostro et pedibus corneis. Long. tota 5·5, alæ 2·8, caudæ 2·4, rostri a rictu 0·6, tarsi 0·75. (Descr. maris ex Jalapa, Mexico. Mus. nostr.)

♀ flavo-olivacea, capite summo et corpore subtus flavescentibus, alis fusco-nigris albo bivittatis, scapularibus griseis; cauda fusco-nigra, extus olivaceo limbata. (Descr. feminæ ex Vera Paz, Guatemala. Mus. nostr.)

Hab. Mexico [13], Lagunas (*Deppé* [1 2]), valley of Mexico (*White* [5]), temperate region of Vera Cruz (*Sumichrast* [12]), Orizaba (*Botteri* [2]), Cordova (*Sallé* [3]), Jalapa [15] (*de Oca* [4]); British Honduras, Belize (*Blancaneaux*); Guatemala (*Constancia* [9]), Chisec, mountains of Rasché [7], Santa Lucia Cosamalguapa [6], Escuintla, Retalhuleu, Volcan de Agua above San Diego, forests of the Volcan de Atitlan (*O. S. & F. D. G.*); Costa Rica (*v. Frantzius* [11]), Tucurriqui (*Arcé*), Barranca, Dota Mountains (*Carmiol* [10]), Navarro (*Cooper* [10]); Panama, Volcan de Chiriqui [8], Calobre, Calovevora [8] (*Arcé*).

Mexican specimens of this species agree with those of Western Guatemala in having the red of the upper surface, especially of the back, of a rather duller hue than is the case in birds from Eastern Guatemala, Costa Rica, and Panama; the former, too, are usually larger, but this is not always the case. Subject to this slight variation *P. erythromelæna* ranges almost uninterruptedly from Southern Mexico to the State of Panama. In South America an allied species occurs, *P. ardens*, the range of which extends from Colombia, Venezuela, and Guiana to Ecuador and Peru. In this southern bird the lores alone are black, whereas in its more northern representative, not only the lores but the forehead, the region round the eyes, and also the chin are black, but to a slightly variable extent as regards the amount on the forehead.

Though found in comparatively low ground as at Escuintla, Retalhuleu, &c., *P. erythromelæna* belongs properly to the forest-region of the mountain-slopes of between 2000 and 4000 feet elevation, and we obtained it in dense forest at Rasché in Vera Paz. It keeps to the branches of forest trees, often so high as to be almost out of shot.

Of its nest and eggs nothing is known.

10. **Pyranga bidentata.**

Pyranga bidendata, Sw. Phil. Mag. new ser. i. p. 438 [1]; Scl. P. Z. S. 1856, p. 126 [2]; 1857, p. 205 [3]; 1859, p. 364 [4]; Scl. & Salv. Ibis, 1860, p. 32 [5]; Lawr. Ann. Lyc. N. Y. ix. p. 99 [6]; Mem. Bost. Soc. N. H. ii. p. 274 [7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [8]; v. Frantzius, J. f. Orn. 1869, p. 299 [9]; Salv. P. Z. S. 1870, p. 187 [10]; Finsch, Abh. nat. Ver. z. Bremen, i. p. 338 [11]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 281 [12].

Phœnicosoma bidentata, Cab. Mus. Hein. i. p. 24 [13].

Pyranga sanguinolenta, Lafr. Rev. Zool. 1839, p. 97 [14].

Coccinea, interscapulio pallide fusco-rufo, plumis singulis medialiter nigris, tectricibus auricularibus nigro intermixtis; alis et cauda fusco-nigris, illis rosaceo-albo bivittatis, hujus rectricibus externis tribus utrinque albo terminatis; rostro et pedibus corneis. Long. tota 7·4, alæ 4·0, caudæ 3·3, rostri a rictu 0·85, tarsi 0·8. (Descr. maris ex Jalapa, Mexico. Mus. nostr.)

♀ supra olivacea, dorso medio nigro guttato, capite toto et corpore subtus flavis, illo fusco striato, alis albo bivittatis, cauda albo terminata. (Descr. feminæ ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Mexico [14] (*le Strange*), Tres Marias Islands (*Grayson* [10 11 12], *Forrer*), Temiscaltepec (*Bullock* [1]), temperate region of Vera Cruz (*Sumichrast*), Jalapa [13] (*Sallé* [3], *de Oca* [4]); Guatemala, Volcan de Fuego [5], Barranco Hondo, San Gerónimo (*O. S. & F. D. G.*); Costa Rica, Dota Mountains, Rancho Redondo (*v. Frantzius* [8], *Carmiol* [6]), Barranca (*Carmiol* [6]), San José, Candelaria, Cervantes (*v. Frantzius* [8]), Birris (*Zeledon* [6]); Panama, Volcan de Chiriqui (*Arcé* [10]).

In the Tres Marias Islands, Grayson found this *Pyranga* to be abundant, and a resident species, but as he did not meet with it on the opposite mainland he thought it a bird peculiar to these islands [7]. We have lately received specimens from the Tres Marias obtained in August 1881 by Mr. A. Forrer. These are hardly so bright-coloured as our Mexican and Central-American specimens, but this may be due to the time of year at which they were shot. There is a great difference, however, in the size of the bill, that of the island birds being much more robust in every way and the characteristic tooth unusually developed. Failing other differences, and having only a pair of the island birds, we are hardly disposed to separate them on this account.

In Mexico *P. bidentata* is found in the higher and temperate districts; but it does not seem to occur much beyond Temiscaltepec, where Bullock first discovered it. Its name is absent from Dr. Dugès's list of Guanajuato birds.

In Guatemala we found it abundant in the forests of the Volcan de Fuego from about 4000 feet above the sea at Barranco Hondo to the ridge above Calderas, which is over 8000 feet high. It also occurred near San Gerónimo in Vera Paz, but we never met with specimens in the collections made by the bird-hunters of Coban. As might be expected, it is absent from the lower districts of Honduras and Nicaragua, but appears again in the mountains of Costa Rica and in the Volcan de Chiriqui, the extreme limit of its range. Between Costa-Rican and Guatemalan specimens we can trace no difference.

The habits of this species offer no peculiarities. Its nest and eggs remain as yet unknown.

11. Pyranga ludoviciana.

Tanagra ludoviciana, Wils. Am. Orn. iii. p. 27, t. 20. f. 1 [1].

Pyranga ludoviciana, Bp. P. Z. S. 1837, p. 116 [2]; Scl. P. Z. S. 1856, p. 125 [3]; 1857, p. 213 [4]; 1859, p. 377 [5]; 1862, p. 19 [6]; Scl. & Salv. Ibis, 1859, p. 15 [7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [8]; Baird, Brew. & Ridgw. N. Am. B. i. p. 437 [9]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 19 [10]; Salv. Cat. Strickl. Coll. p. 192 [11].

Flava; interscapulio, alis et cauda nigris, alis flavo bivittatis, capite et gutture undique coccineo indutis; rostro pallide corneo, tomiis albidis, pedibus obscure plumbeis. Long. tota 7·0, alæ 3·9, caudæ 2·9, rostri a rictu 0·7, tarsi 0·75. (Descr. maris ex California, Smiths. Inst. no. 21370. Mus. nostr.)

♀ fusco-olivacea, capite summo et uropygio flavidioribus, subtus flava, hypochondriis fuscescentibus; alarum vittis flavo-albidis. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America, Missouri plains to Pacific Ocean.—Mexico, San Blas (*Kellett* [3]), State of Vera Cruz (*Sumichrast* [8]), Orizaba (*Botteri* [3 4]), Oaxaca (*Boucard* [5]), La Parada (*Boucard* [6]), Ishuatlan and Santa Efigenia (*Sumichrast* [10]); Guatemala, (*Velasquez de Leon* [2], *Constancia* [3 11]), Alotenango [7], Dueñas (*O. S. & F. D. G.*), Coban (*Sarg*).

This species of western North America appears in our region only as a winter visitor, arriving in September and leaving again for the north in April. During the summer months it spreads from the northern frontier of Mexico to Fort Liard, probably breeding throughout this area.

In Guatemala it can hardly be called a common bird, but it may generally be found in the winter months frequenting the table lands at an elevation of about 5000 feet. At this season we never met with fully plumaged birds, and it would appear that the males of this species have a breeding-dress assumed only at the time of pairing. Dr. Cooper, the well-known naturalist of California, speaks of young and old of *P. ludoviciana* associating in autumn in families, all in the same dull-greyish plumage. But this observation probably only applies to the absence of the red head and throat in the male, which we have never seen in birds shot between October and March.

Mr. Ridgway found *P. ludoviciana* breeding in Utah in 1869 [9]. The nest was at the extreme end of a horizontal branch of a pine, flat with only a very slight depression. It was composed of a few twigs and dry wiry stems, and lined almost entirely with fine vegetable rootlets. The eggs are light bluish-green, sparingly speckled, chiefly at the larger end, with markings of umber intermingled with a few dots of lilac.

CHLOROTHRAUPIS.

Chlorothraupis, Ridgway, Pr. U. S. Nat. Mus. 1883.

The two species we place in this genus have hitherto stood one in *Orthogonys*, the other in *Phœnicothraupis*, each being an abnormal element in the genus in which it was located. The two birds, *Orthogonys olivaceus* and *Phœnicothraupis carmioli*, are evidently nearly

allied. The general colour of the plumage is the same and the difference between the sexes slight. In this respect they resemble *Orthogonys viridis* of Brazil; but the bill is much stouter and the cutting-edge of the maxilla is convex in the middle, forming almost a dental process; the terminal notch is very distinct. In *Orthogonys* the bill is much more slender and the commissure of the maxilla is simply curved without a trace of a median dental process. In coloration both species of *Chlorothraupis* have a great resemblance to *Orthogonys viridis*.

The bill of *Chlorothraupis* differs from that of *Phœnicothraupis* in being rather more compressed, otherwise the shape is very similar. But the great difference between the two is in the coloration of the plumage, olive-green being the prevalent colour in *Chlorothraupis*, whilst different shades of red distinguish the males of *Phœnicothraupis*, and of brown or ochraceous brown the females. The males, too, are all ornamented with a scarlet crest.

The range of *Chlorothraupis* is confined entirely to Western America from Peru to Nicaragua; *C. carmioli* being found at each end of this area, whilst *C. olivacea* occupies the middle region from Panama to Ecuador.

1. Chlorothraupis olivacea.

Orthogonys olivaceus, Cassin, Pr. Ac. Phil. 1860, p. 140 [1]; 1864, p. 287, t. 2 [2]; Scl. & Salv. P. Z. S. 1879, p. 502 [3].

Olivaceo-viridis, subtus dilutior, oculorum ambitu et loris superioribus flavis, gutture et subalaribus flavo variegatis; rostro et pedibus plumbeo-nigrescentibus. Long. tota 6·5, alæ 3·7, caudæ 2·7, rostri a rictu 0·8, tarsi 0·9. (Descr. maris ex Remedios, Colombia. Mus. nostr.)

♀ mari similis sed flavo nullo modo ornata, corpore subtus in medio et subalaribus fulvescentibus. (Descr. feminæ ex Puente de Chiarvo, Ecuador occ. Mus. H. von Berlepsch.)

Hab. Panama, valley of the Truando (*Wood* [1]).—Colombia [3]; Ecuador.

Of this little-known species the first specimen was obtained by the Messrs. Wood, who were attached to the United States Expedition, sent under Lieut. Michler to explore the Isthmus of Darien. Cassin described and figured it in his papers relating to the birds obtained during the survey that was then made, under the name of *Orthogonys olivaceus*. Mr. C. J. Wood states that the bird inhabits low trees and bushes in the Cordillera; on the Rio Truando it could be constantly heard at some localities, though not so easily seen. Its notes, he adds, are loud and much varied, bearing a general resemblance to those of the Chat of North America (*Icteria viridis*). It appeared to be very active and lively, constantly flying about the bushes and changing its position. Nothing more was heard of this species until the late Mr. T. K. Salmon obtained specimens from Remedios and Nechi in the Colombian State of Antioquia; but the only note he made concerning it was that it feeds on fruit, and that the iris is dark [3]. Since then we have received a specimen which was contained in a collection made in the neighbourhood of Pasto; and quite recently Count von Berlepsch has submitted to us a bird from

Western Ecuador, which we have very little doubt is a female of this species, and have so described it above. All the other examples we have seen are males, and have the yellow ring round the eye and the yellow lores, the female being without this ornament. The Pasto specimen is rather darker on the crown and back than those from Antioquia, but we do not notice any other difference. Again, one of Salmon's examples is somewhat younger than the other and has a lighter-coloured bill, and the throat is less speckled and more suffused with yellow.

2. **Chlorothraupis carmioli.** (*Phœnicothraupis carmioli.* Tab. XX. fig. 1.)

Phœnicothraupis carmioli, Lawr. Ann. Lyc. N. Y. ix. p. 100[1]; Salv. Ibis, 1869, p. 313[2]; Scl. & Salv. P. Z. S. 1873, pp. 186[3], 780[4].

Olivacea, subtus dilutior, gula indistincte striata; rostro et pedibus plumbeo-nigris. Long. tota 7·0, alæ 3·5, caudæ 2·6, rostri a rictu 0·8, tarsi 0·9. (Descr. maris ex Volcan de Turrialba, Costa Rica. Mus. nostr.)
♀ adhuc ignota.

Hab. Nicaragua, Chontales (*Belt*); Costa Rica, Angostura[1], Volcan de Turrialba (*Carmiol*).—Peru[3 4].

But few specimens of this species have as yet come under our notice, but we received one from Carmiol (that now figured) soon after Mr. Lawrence's description first appeared. Since then we found one in Belt's collection showing its range into Nicaragua, but at present we have no traces of it from the State of Panama, nor, indeed, till we come to South-eastern Peru, where Whitely found it in the valley of the Cosnipata[3 4]. These Peruvian examples, it is true, do not agree accurately with typical ones, as the undersurface is of a greener shade, and the bill is shorter and less robust. But as one specimen is rather lighter-coloured than the other and as we have by no means a good series for comparison we hesitate to separate them.

At present we have not seen a female of this species, but if we are correct concerning the female of *C. olivacea*, we suppose, from analogy, that it would have some fulvous colour down the middle of the undersurface.

PHŒNICOTHRAUPIS.

Phœnicothraupis, Cabanis, Mus. Hein. i. p. 24 (1850); Scl. P. Z. S. 1856, p. 119.

This is a purely neotropical genus, ranging over the whole of the tropical portion of the region from Southern Mexico to South-eastern Brazil and Paraguay. It is absent from the West Indian Islands, with the exception of Trinidad. We now know of nine species of this genus, not including *Phœnicothraupis carmioli*, which we have removed elsewhere. The commonest of these, *P. rubica*, is a Brazilian bird found in Paraguay, Bolivia, and, according to Taczanowski, in Peru. An allied species, *P. rubra*, is only known from the island of Trinidad. Two peculiar species, *P. gutturalis* and

P. cristata, are found in Colombia, and another species is peculiar to Eastern Ecuador: this we call *P. rhodinolæma**.

Of the four Central-American species, two belong to Southern Mexico and Guatemala, and two to Costa Rica and Panama. *P. fuscicauda* of the latter countries spreads northwards to Nicaragua and southwards into Northern Colombia, and is the only species of the four not peculiar to our region.

The bill in *Phœnicothraupis* is much like that of *Pyranga*; the terminal notch is well defined, and there is sometimes an indefinite curve on the cutting-edge of the maxilla, which in some cases is almost developed into the dentate process so noticeable in certain species of *Pyranga*. The wings are rounded, the third, fourth, and fifth quills being longest. The tail is long and rounded, and red enters largely into the general colour of the male, brown being the chief colour in the female. The male in all the species has a scarlet crest, which is in some cases almost hidden by the other feathers.

1. Phœnicothraupis rubicoides.

Saltator rubicoides, Lafr. Rev. Zool. 1844, p. 41 [1].

Phœnicothraupis rubicoides, Cab. Mus. Hein. i. p. 24 [2]; Scl. P. Z. S. 1856, pp. 120 [3], 303 [4]; 1859, pp. 364 [5], 377 [6]; 1864, p. 173 [7]; Scl. & Salv. Ibis, 1859, p. 15 [8]; 1860, p. 32 [9]; P. Z. S. 1870, p. 836 [10]; Moore, P. Z. S. 1859, p. 58 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [12]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 19 [13]; Salv. Cat. Strickl. Coll. p. 193 [14].

Tanagra ignicapilla, Licht. Preis-Verz. mex. Vög. p. 2. Cf. J. f. Orn. 1863, p. 56 [15].

Fusco-rubescens, supra unicolor, subtus clarior, gutture toto ruberrimo, crista verticali coccinea utrinque nigro marginato, rostro nigro-plumbeo, pedibus obscure corylinis. Long. tota 7·0, alæ 3·6, caudæ 3·1, rostri a rictu 0·8, tarsi 0·9.

♀ pallide fusco-brunnea, subtus dilutior, gutture pallidiore, crista verticali ochraceo-fulva nigro utrinque marginata. (Descr. maris et feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico [1 2], valley of Mexico (*White* [7]), Papantla (*Deppe* [3 15]), hot region of Vera Cruz (*Sumichrast* [12], *le Strange*), Cordova (*Sallé* [4]), Jalapa [3] (*de Oca* [5]), Playa Vicente (*Boucard* [6]), Guichicovi (*Sumichrast* [13]); Guatemala (*Constancia* [9 15], *Skinner* [9]), Yzabal [9], Choctum, Alotenango, Savana Grande, Escuintla, Costa Grande, Retalhuleu (*O. S. & F. D. G.*); Honduras, Omoa (*Leyland* [13]), San Pedro (*G. M. Whitely* [10]).

---

* Phœnicothraupis rhodinolæma, sp. n.

Fusco-rubescens, cauda rufescentiore, crista verticali fere celata coccinea nigro haud marginato, subtus gula rubra, ventre medio rosaceo, hypochondriis fuscis, rostri maxilla corylina, mandibula pallida, pedibus corylinis. Long. tota 6·0, alæ 3·6, caudæ 2·7, rostri a rictu 0·7, tarsi 0·7.

♀ brunnea, alis extus et cauda rufescentioribus, crista verticali fulva, subtus sordide alba, hypochondriis fuscis.

Hab. Sarayacu, Ecuador (*Buckley*).

Mus. nostr

A small species differing in many respects from all hitherto described. The female is peculiar in its light-coloured underparts.

We possess a pair of this species which formed part of Mr. C. Buckley's large collection from Eastern Ecuador, but which have remained undescribed in our collection up till the present time.

This Mexican and Guatemalan species is closely allied to *Phœnicothraupis rubica* of South-eastern Brazil, and can only be distinguished from it by the tail being of almost the same tint as the back, in the abdomen being the same colour as the breast, and in the throat being clearer red. The ranges of the two birds, however, seem to be separated by a very wide interval, the intermediate space being occupied by *P. vinacea* and other species.

Until quite recently it was supposed that only one variable species of *Phœnicothraupis* was found in Mexico and Guatemala; but Count von Berlepsch, with his usual discrimination, has shown that two species have been confounded under the name *P. rubicoides*. The second, described below as *P. salvini*, is, in fact, the northern representative of *P. fuscicauda*, and is more remotely allied to *P. rubicoides* than would appear at first sight. In arranging the references given above, we have endeavoured to assign them to each of these species; but it may hereafter turn out, in a few instances, where specimens are no longer accessible, that some we now believe to belong to *P. rubicoides* are really referable to *P. salvini*.

Phœnicothraupis rubicoides is a common species in Southern Mexico, whence it was originally described [1]. It is, according to Sumichrast, an inhabitant of the hot region, seldom reaching an elevation of between 3000 and 4000 feet [13]. In Guatemala we found it in similar situations, but as high as about 4500 feet, between the volcanoes of Agua and Fuego. But it is essentially a denizen of the hot tropical forests, where it is to be met with in the lower underwood. In the neighbourhood of Choctum it is especially common and in the vast forests of that district. Here, however, it lives with *P. salvini*, which, again, has a more northern range in the direction of Yucatan and British Honduras.

2. Phœnicothraupis vinacea.

Phœnicothraupis vinacea, Lawr. Pr. Ac. Phil. 1867, p. 94 [1]; Ann. Lyc. N. Y. ix. p. 99 [2]; v. Frantzius, J. f. Orn. 1869, p. 299 [3]; Salv. P. Z. S. 1870, p. 187 [4].

Phœnicothraupis rubica ?, Salv. P. Z. S. 1867, p. 139 (see Vieillot) [5].

P. rubicoidi persimilis sed supra paulo obscurior, subtus quoque obscurior, gula et abdomine fere concoloribus. ♀ paulo magis olivascens quam femina *P. rubicoidis*, crista verticali forsan pallidiore. (Descr. maris ex Calovevora et feminæ Santa Fé, Panama. Mus. nostr.)

Hab. Costa Rica [3], Guaitil, Grecia (*Carmiol* [2]); Panama, Volcan de Chiriqui [4], Calovevora [4], and Santa Fé [5] (*Arcé*), Panama (*M'Leannan* [1]).

The first specimens we obtained of this bird were doubtfully referred to *Phœnicothraupis rubica*, to which they have in some respects a closer resemblance than to *P. rubicoides* [5]. The back is, however, rather darker than that of *P. rubica*, and the tail is of the same colour as the back instead of being lighter red. The colour of the under plumage is decidedly darker, especially that of the abdomen, and the throat is not paler, as in *P. rubicoides*.

P. vinacea has a limited range in Central America, being confined to Costa Rica and the State of Panama. In those countries it no doubt takes the place of the more northern *P. rubicoides*, just as *P. fuscicauda* represents *P. salvini* in the same countries.

3. **Phœnicothraupis fuscicauda.**

Phœnicothraupis fuscicauda, Cab. J. f. Orn. 1861, p. 86[1]; Lawr. Ann. Lyc. N. Y. viii. pp. 9[2], 179[3]; ix. p. 99[4]; Scl. & Salv. P. Z. S. 1864, p. 350[5]; v. Frantzius, J. f. Orn. 1869, p. 299[6]; Salv. Ibis, 1872, p. 316[7].

Phœnicothraupis erythrolæma, Scl. Cat. Am. B. p. 83 (ex Bp. MS.)[8].

Phœnicothraupis rubicoides, Lawr. Ann. Lyc. N. Y. vii. p. 297[9].

Obscure fusco-rubescens, subtus clarior, alis caudaque nigro-brunneis rubescente marginatis, vertice medio subcristato coccineo nigro haud marginato, gutture medio distincte læte coccineo; rostro nigro, pedibus corylinis. Long. tota 7·8, alæ 4·1, caudæ 4·0, rostri a rictu 0·7, tarsi 1·0. (Descr. maris ex Lion Hill, Panama. Mus. nostr.)

♀ pallide fusco-brunnea, pileo dorso concolori, subtus dilutior, ventre imo pallidiore, gula ochracea. (Descr. feminæ ex San Carlos, Costa Rica. Mus. Boucard.)

Hab. Nicaragua, Chontales (*Belt*[7], *Janson*), Greytown (*Holland*[3]); Costa Rica[1], Angostura (*Carmiol*[4], *v. Frantzius*[6]), Sarapiqui (*v. Frantzius*[6]), Bebedero on the Gulf of Nicoya (*Arcé*); San Carlos (*Boucard*); Panama, Lion Hill (*M'Leannan*[2 5 9]). —Colombia[8].

Before this species was formally described by Dr. Cabanis in 1861, specimens of it from Santa Marta, Colombia, were in collections bearing, so Mr. Sclater tells us, the MS. name *P. erythrolaima*, Bp. One of these passed into the cabinet of the latter ornithologist, and on the receipt of M'Leannan's specimens from Panama in 1864, we were enabled to pronounce it identical with them and with *P. fuscicauda* of Cabanis[5].

The species may readily be distinguished from *P. rubicoides*, not only by its darker colour, especially its tail, but by the clear definition of the scarlet throat, and by the absence of a dark lateral border to either side of the occipital crest. The same differences distinguish it from *P. vinacea*. Its nearest ally is the recently described *P. salvini*, which has a similar crest; but the plumage of this bird, especially the abdomen, is much redder and the throat not nearly so distinctly circumscribed.

Dr. Cabanis's type came from Costa Rica, whence we have also received examples, as well as from the State of Panama, where, however, it does not seem to be generally distributed, as our collector Arcé, in a large series of *P. vinacea* obtained at Chiriqui and the neighbourhood of Santiago de Veraguas, did not include a single specimen of this bird; M'Leannan alone met with it on the line of the Panama railway. Northwards of Costa Rica it spreads to Chontales in Nicaragua, where both Belt and Janson obtained male specimens[7]. It has also been recorded from the Isthmus of Tehuantepec; but the birds obtained there belong to the next species.

4. **Phœnicothraupis salvini.**

Phœnicothraupis salvini, Berl. Ibis, 1883, p. 487 [1].

Phœnicothraupis rubicus, Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [2]?

Phœnicothraupis fuscicauda, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 19 [3]?

Phœnicothraupis rubicoides, Boucard, P. Z. S. 1883, p. 443 [4].

P. fuscicaudæ affinis sed undique magis rubescens, gula coccinea haud distincte circumdata et abdomine magis rubro distinguenda.

♀ brunnea fere unicolor, capite haud cristato, gula et abdomine medio ochraceis. (Descr. maris et feminæ ex Chisec, Guatemala. Mus. nostr.)

Hab. Mexico, hot region of Vera Cruz (*Sumichrast* [2]), Guichicovi (*Sumichrast* [3]), Izalam in Yucatan (*Gaumer* [4]); British Honduras, Corosal (*Roe*), Belize (*Blancaneaux*); Guatemala, Chisec (*O. S. & F. D. G.*).

It is probably this species that is referred to by Sumichrast as *Phœnicothraupis rubicus* in his paper on the Birds of Vera Cruz, as he also mentions the presence of *P. rubicoides* in the same country. The bird called *P. fuscicauda* by Mr. Lawrence, from Tehuantepec, certainly belongs here, and it too was accompanied by *P. rubicoides*. Count von Berlepsch expresses some doubt as to the name of a young male from Tehuantepec, sent us by the late Professor Sumichrast; but an adult male kindly supplied to us by M. Boucard from the same source proves that *P. salvini* is certainly found in the Isthmus of Tehuantepec.

The range of this species, therefore, includes Southern Mexico. In Yucatan and in the neighbourhood of Belize it also occurs, as we have several male examples from there. It is also to be found in the forests of Northern Vera Paz, which stretch from Coban in the south to the confines of Peten in the north, as from nearly the centre of this district we have specimens of both sexes, as well as of a young male.

The female of *P. salvini* has no crest; in this respect it agrees with that sex in *P. fuscicauda*, of which it is a northern form. The male of *P. salvini* may easily be distinguished from that of *P. rubicoides*, with which it is often found associated, by the absence of the dark lateral margin to the crest, by its brighter throat, and the rather greyer cast of the plumage of the upper surface.

LANIO.

Lanio, Vieillot, Anal. p. 40 (1816); Scl. P. Z. S. 1856, p. 118.

Five species constitute this genus, three of which are peculiar to our region, viz. *L. aurantius* of Southern Mexico, Guatemala, and Honduras; *L. leucothorax* of Nicaragua and Eastern Costa Rica; and *L. melanopygius* of Western Costa Rica and the State of Panama. The extreme range of *Lanio* in the latter State is the mountains in the neighbourhood of Santa Fé; it is not found in the low-lying forests of the line of railway. In South America two distinct species occur—one, *L. atricapillus*, having a

wide range over nearly the whole of the northern portion of the continent, the other, *L. versicolor*, occupying a much more restricted country, being confined to South-eastern Peru and North-eastern Bolivia.

The long strong bill of *Lanio*, with its terminal hook and prominent dentate process on the middle of the commissure of the maxilla, is a conspicuous characteristic of the genus, as distinguished from *Pyranga* and its allies. Besides this it has a more elongated body, and the tail considerably produced. The wings are long, the third and fourth quills being the longest. The tarsi are short, and the feet feeble.

The species of *Lanio* are birds of the forest, where they feed on fruit and insects, and frequent the upper parts of the forest-trees.

1. **Lanio aurantius.**

Lanio aurantius, Lafr. Rev. Zool. 1846, p. 204 [1]; Bp. Consp. i. p. 240 [2]; DuBus, Esq. Orn. t. 21 [3]; Scl. P. Z. S. 1856, pp. 119 [4], 303 [5]; 1857, p. 229 [6]; Scl. & Salv. Ibis, 1859, p. 15 [7]; Ex. Orn. p. 61, t. 31 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [9]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 19 [10].

Luteus, capite undique cum thorace, alis et cauda nigris, pectore fulvescente, humeris et subalaribus albis; rostro nigro, pedibus fusco-nigris. Long. tota 8·0, alæ 4·2, caudæ 3·8, rostri a rictu 0·9, tarsi 0·75.

♀ supra brunnea, uropygio ferrugineo, capite toto cinerascenti-ochraceo, gula pallidiore; subtus olivacea, abdomine medio flavicante, crisso ferrugineo. (Descr. maris ex Choctum, feminæ ex Kamhal, Guatemala. Mus. nostr.)

Hab. Mexico, Orizaba (*Sallé* [4 5]), Santecomapam (*Boucard* [6]), hot region of Vera Cruz, San Uvero, Omealca (*Sumichrast* [9]), Guichicovi (*Sumichrast* [10]); British Honduras, Belize (*Blancaneaux*); Guatemala, Choctum, Kamkal, Kampamak (*O. S. & F. D. G.*); Honduras (*Dyson* [4 7 8]).

The habitat of this species has been given as Colombia [1 2]; but this is clearly an error, as its range is now known to lie between Southern Mexico and Honduras. In the former country Sumichrast considers it an inhabitant of hot districts, its range in altitude not exceeding 1500 or 1600 feet. He further observes that the habits of the species are somewhat like those of the Tyrant Flycatchers, and that it is more insectivorous than most Tanagers [9]. In Guatemala its range is restricted to the forests of Northern Vera Paz, where it is abundant, and northwards in the extension of the same forests to the vicinity of Belize. At Choctum and its neighbourhood it is quite common, and here our native hunters obtained us a good supply of specimens. The highest point where we found it was at Kamkal, a little to the northward of Coban, and nearly 4000 feet above the sea. Here a female was shot as she sat in the upper branches of a forest tree.

L. aurantius can readily be distinguished from the more southern species by its black throat, below which is a large rusty patch of colour.

The general resemblance in colour of these birds to some of the *Icteri* is remarkable.

2. Lanio leucothorax.

Lanio leucothorax, Salv. P. Z. S. 1864, p. 581 [1]; Ibis, 1872, p. 317 [2]; Cassin, Pr. Ac. Phil. 1865, p. 171 [3]; Lawr. Ann. Lyc. N. Y. ix. p. 100 [4]; v. Frantz. J. f. Orn. 1869, p. 299 [5]; Scl. & Salv. Ex. Orn. p. 63 (partim), t. 32, ♀ [6].

L. aurantio similis, sed thorace maris albo primo visu distinguendus.

Hab. Nicaragua, Chontales (*Belt* [2]); Costa Rica (*v. Frantzius* [5]), Tucurriqui (*Arcé* [1 6]); Pacuar and Angostura (*Carmiol* [3 4]).

The original type of the male of this species, received from Arcé from Tucurriqui in Costa Rica, is in bad condition; and this led to its being imperfectly described in the first instance, as regards the colour of the lower back. On the receipt of well-prepared specimens from the State of Panama, these were supposed to belong to the same species, and the lower back was described as black. One of these latter birds was figured in 'Exotic Ornithology' as the male of *Lanio leucothorax*. It now proves that the Panama bird belongs to a distinct species, and that the true *L. leucothorax* has the lower back as well as the crissum yellow.

The range of this bird seems confined to the eastern forests of Costa Rica, whence it passes northwards into the Nicaraguan province of Chontales. The allied species has a more southern habitat, extending from Western Costa Rica to about the middle of the State of Panama.

3. Lanio melanopygius.

Lanio leucothorax melanopygius, Ridgw. Pr. U. S. Nat. Mus. 1883 [1].

Lanio leucothorax, Salv. P. Z. S. 1867, p. 139 [2]; 1870, p. 188 [3]; Scl. & Salv. Ex. Orn. p. 63 (partim), t. 32, ♂ [4].

Similis præcedentibus, sed dorso postico nigro et crisso plerumque nigro distinguendus; thorace sicut in *L. leucothorace* alba. (Descr. maris ex Bugaba, Panama. Mus. nostr.)

Hab. Costa Rica, Piris (*Zeledon* [1]); Panama, Volcan de Chiriqui [3], Bugaba [3], Cordillera del Chucu [3], Chitra [3], Cordillera de Tolé [2], Santiago de Veraguas [2], Calovevora [3], Santa Fé [2] (*Arcé*).

To Mr. Ridgway is due the discrimination of this species from *Lanio leucothorax*, with which it had been confounded, owing chiefly to the imperfection of the type of that bird. Mr. Ridgway was inclined to place it as a variety of *L. leucothorax*; but we think there can be no difficulty in distinguishing the adult males with the greatest certainty now that their distinctive characters have been pointed out. In younger birds a few rusty feathers appear on the lower back; but these would certainly have disappeared with the next moult. Regarding the colour of the crissum, we are not quite certain whether it is fully black in adult birds, or whether the feathers are still edged with golden yellow. We have birds apparently adult in which the crissum is plain black in

some, and black edged with yellow in others. One of the latter was figured in 'Exotic Ornithology' as the adult male of *L. leucothorax*.

The range of this species seems to be quite distinct from that of *L. leucothorax*, and extends from the forests of the western side of the mountains of Costa Rica southwards as far as Santa Fé in the State of Panama.

EUCOMETIS.

Eucometis, Sclater, P. Z. S. 1856, p. 117, *vice* :—
Comarophagus, Bp. Compt. Rend. xxxii. p. 81 (1851) (nec Boie).

Eucometis is closely allied to *Tachyphonus*, and perhaps the only really trustworthy difference is in the sexes being coloured alike instead of quite differently, as in *Tachyphonus*. The commissure of the maxilla is simply curved, or but slightly waved, as in *Tachyphonus*. The wings are rounded, the fourth quill being the longest, the third and fifth being nearly equal to it; the tail is long and rounded. The tarsi and feet in the more typical *E. cristata* are rather slender and feeble, but stouter in *E. cassini*, which does not differ from *Tachyphonus* in this respect.

Of the five known species of *Eucometis* three are found within the limits of our fauna; the other two are close allies of *E. cristata*, and belong to Guiana, Amazonia, and Bolivia. *E. spodocephala* is the only peculiar species in our region, but *E. cassini* only just passes beyond it.

1. Eucometis cristata.

Pipilopsis cristata, DuBus, Bull. Ac. Brux. xxxii. p. 154 [1].
Eucometis cristata, Scl. P. Z. S. 1856, p. 118 [2]; Cassin, Pr. Ac. Phil. 1860, p. 141 [3]; Lawr. Ann. Lyc. N. Y. vii. p. 298 [4]; Scl. & Salv. P. Z. S. 1864, p. 350 [5]; 1868, p. 627 [6]; Salv. & Godm. Ibis, 1880, p. 121 [7].
Trichothraupis penicillata, Scl. P. Z. S. 1855, p. 156 (nec Spix) [8].

Flavo-olivacea, uropygio clariore, capite toto cinereo, cristæ plumis sericeo-cinereis, gula multo pallidiore, corpore reliquo subtus aureo-flavo; rostro corneo, pedibus carneis. Long. tota 6·5, alæ 3·6, caudæ 3·2, rostri a rictu 0·7, tarsi 0·8. (Descr. maris ex Lion Hill, Panama. Mus. nostr.)
♀ mari omnino similis.

Hab. Panama, Lion Hill (*M'Leannan* [4]), Paraiso Station (*Hughes*), Rio Truando (*Wood* [3]).
—Colombia [2 7 8]; Venezuela [2 6].

This is a north-western form of the Guianan and Amazonian *Eucometis penicillata*, and is found through Western Venezuela and Colombia, and thence passes to the isthmus of Darien and into our region as far as the line of the Panama railway. A little further westwards, at Santa Fé, its place is taken by *E. spodocephala*.

Mr. C. J. Wood, who observed a party of three birds in the valley of the Truando, says it frequents bushes and low trees, and has a loud pleasant song [3].

2. **Eucometis spodocephala.** (Tab. XX. fig. 2.)

Chlorospingus spodocephalus, Bp. Compt. Rend. xxxvii. p. 922[1]; Notes Orn. p. 22[2].

Eucometis spodocephala, Scl. & Salv. Ibis, 1860, p. 274[3]; P. Z. S. 1870, p. 836[4]; Salv. P. Z. S. 1867, p. 139[5]; 1870, p. 188[6]; Ibis, 1872, p. 316[7]; Lawr. Ann. Lyc. N. Y. ix. p. 100[8]; Boucard, P. Z. S. 1883, p. 443[9].

E. cristatæ persimilis, sed capite saturatius cinereo, crista haud sericeo-cinerea, gula obscuriore distinguenda. (Descr. exempl. ex Virgin Bay, Nicaragua. Mus. nostr.)

♀ mari omnino similis.

Av. hornot. capite summo dorso concolore, gula quoque olivacea. (Descr. exempl. ex Mina de Chorcha, Panama. Mus. nostr.)

Hab. Mexico, Northern Yucatan (*G. F. Gaumer*); British Honduras (*Blancaneaux*); Guatemala (*Constancia*[3]), Honduras, *San Pedro* (*G. M. Whitely*[4]); Nicaragua (*Delattre*[1 2]), Virgin Bay (*Bridges*[7]), Hato Viejo (*Baxter*); Costa Rica[7], Tempate (*Arcé*); Panama, Bugaba[6], Mina de Chorcha[6], Santa Fé[5] (*Arcé*).

A northern form of *E. cristata*, to which it is very closely allied, but may be recognized by the darker tint of the grey head, and by the absence of the silky crest present in the allied species. *E. spodocephala* was first described by Bonaparte from specimens procured by Delattre in Nicaragua, whence we have an example and have seen others. It was then traced to Guatemala, where, however, we only obtained a single specimen, out of a collection made by the late Don Vicente Constancia, and we are uncertain in what part of the country it was shot. In Yucatan and in British Honduras it would appear to be more abundant, as Mr. Gaumer obtained several specimens in the former country, some of which have come into our possession through M. Boucard[9]. Southwards of Nicaragua it is found but rarely in Western Costa Rica, and thence as far as Santa Fé in the State of Panama. It is perhaps more numerous in the neighbourhood of Chiriqui than elsewhere. On the line of the Panama railway, *E. cristata* takes its place.

3. **Eucometis cassini.**

Tachyphonus cassini, Lawr. Ann. Lyc. N. Y. vii. p. 297[1]; ix. p. 101[2]; v. Frantzius, J. f. Orn. 1869, p. 299[3].

Eucometis cassini, Scl. & Salv. P. Z. S. 1864, p. 351, t. 30[4]; 1879, p. 503[5]; Salv. P. Z. S. 1867, p. 139[6].

Tachyphonus, sp.?, Cassin, Pr. Ac. Phil. 1860, p. 142[7].

Supra fuliginosa, capite summo et nucha olivaceis, fronte et capitis lateribus nigris; subtus gula cinerea, abdomine toto olivaceo, crisso ferrugineo; rostro corneo, mandibula albicante; pedibus fuscis. Long. tota 6·7, alæ 3·4, caudæ 3·1, rostri a rictu 0·9, tarsi 1·0. (Descr. maris ex Santa Fé, Panama. Mus. nostr.)

♀ mari omnino similis.

Avis juv. fusca, subtus pallidior, gula flavicante. (Descr. exempl. ex Panama. Mus. nostr.)

Hab. Costa Rica[3], Angostura (*Carmiol*[2]); Panama, Santiago de Veraguas (*Arcé*[6]), Lion Hill (*M'Leannan*[1 4]), Rio Truando (*Wood*[7]).—Colombia[5].

Eucometis cassini is a somewhat aberrant member of the genus *Eucometis*, agreeing with it in general structure, and in having the sexes coloured alike; the tarsi and feet are rather stouter in proportion than in true *Eucometis*, and the colour of the plumage departs from the olive and yellow tints of its allies.

The first indication of the existence of this species was a female specimen shot at the Falls of the Truando by Mr. Wood, but left as an undetermined species of *Tachyphonus* by Cassin.

The receipt of specimens from M'Leannan by Mr. Lawrence enabled that ornithologist to describe the species fully. A figure of the bird, also taken from one of M'Leannan's specimens, which accompanies Messrs. Sclater and Salvin's paper on the birds of Panama, made the species still better known.

The line of the Panama railway seems to be the head-quarters of *Eucometis cassini*; for though it has been traced northwards to Costa Rica, it seems a rare bird there. Arcé only sent one example from Santiago de Veraguas and none from Chiriqui, and it does not appear in any abundance in Costa-Rica collections.

Its extension beyond the limits of Central America was proved by Salmon, who found it at Nechi in the Colombian State of Antioquia; but his only remark concerning it is that the "iris is dark," and the food "fruits &c."[5] It is also probably found in Western Ecuador; but of this, as yet, we have no proof.

TACHYPHONUS.

Tachyphonus, Vieillot, Anal. p. 33 (1816); Scl. P. Z. S. 1856, p. 113.

Eleven species are included in the genus *Tachyphonus*, no less than six of which occur within our region—two of these, *T. chrysomelas* and *T. nitidissimus*, being peculiar to Costa Rica and the State of Panama. The most widely-distributed members of the genus, *T. melaleucus* and *T. luctuosus*, both range northwards as far as Costa Rica, and the latter advances still further to Nicaragua. The remaining species, *T. xanthopygius* and *T. delattrii*, are both found in Costa Rica, and thence pass southwards into Colombia.

The bill of *Tachyphonus* is rather elongated, subconical, and the culmen more or less incurved; the commissure is undulated, and near the apex is a well-defined notch. The wings are rounded, and the primaries short, the fourth and fifth being the longest. The tail is long and usually rounded. The tarsi and toes are short and rather feeble.

One of the most aberrant members of the genus is *T. chrysomelas*, its peculiar coloration, delicate bill, and square tail rendering it very distinct from the more robust species, such as *T. melaleucus*.

As regards coloration, black largely predominates in the males—*T. melaleucus*, *T. luctuosus*, *T. delattrii*, and *T. nitidissimus* being chiefly of that colour. The male of *T. xanthopygius* has yellow shoulders and a yellow rump, and is further distinguished

by crimson superciliaries. *T. chrysomelas*, again, is chiefly yellow, the prevailing black colour of the other species being here confined to the middle of the back, the wings, and tail.

The females of all the species differ widely in colour from the males.

In the following arrangement we have adhered to the plan sketched out in 'Exotic Ornithology' (p. 68), where the species are divided into crested and non-crested groups. This arrangement is somewhat arbitrary; but the species can readily be distinguished by it.

A. *Vertex haud cristatus.*

a. *Uropygium dorso concolor.*

1. Tachyphonus melaleucus.

Oriolus melaleucus, Sparrm. Mus. Carls. t. 31 [1].

Tachyphonus melaleucus, Scl. P. Z. S. 1856, p. 113 [2]; Scl. & Salv. P. Z. S. 1864, p. 351 [3]; 1867, p. 571 [4]; 1868, p. 167 [5]; 1879, p. 503 [6]; Lawr. Ann. Lyc. N. Y. vii. p. 331 [7]; Pelz. Orn. Bras. p. 212 [8]; Finsch, P. Z. S. 1870, p. 582 [9]; Zeledon, Cat. Av. de Costa Rica, p. 7 [10].

Tanagra rufa, Bodd. Tabl. Pl. Enl. p. 44 [11].

Oriolus leucopterus, Gm. Syst. Nat. i. p. 392 [12].

Tanagra nigerrima, Gm. Syst. Nat. i. p. 899 [13].

Tachyphonus nigerrimus, Cab. in Schomb. Reise n. Guiana, iii. p. 669 [14]; Burm. Syst. Ueb. iii. p. 166 [15].

Tachyphonus beauperthuyi, Bp. Compt. Rend. xxxii. p. 82 [16].

Sericeo-niger, humeris et subalaribus albis, rostro nigro, pedibus obscure fuscis. Long. tota 7·0, alæ 3·3, caudæ 3·3, rostri a rictu 0·8, tarsi 0·8.

♀ ferruginea, subtus paulo dilutior. (Descr. maris et feminæ ex Panama. Mus. nostr.)

Hab. Costa Rica (*Zeledon* [10], *Van Patten*); Panama, Veraguas (*Arcé*), line of railway (*M'Leannan* [3 7], *Arcé*), Obispo (*O. S.*).—Colombia [2 6]; Venezuela [5 16] and Trinidad [9]; Guiana [1 14]; Lower Amazons [4]; Brazil.

We can see no difference in birds from different parts of the wide area indicated above, except that those from the north-western portion of the range of the species, Central America and Colombia, are rather smaller than those from Guiana and Brazil; but the difference is immaterial.

The first description given of this well-known species is that by Sparrman, who also figured it in his 'Museum Carlsonianum' [1]. This description and figure were either overlooked or ignored until Mr. Sclater installed Sparrman's name in its rightful position in 1856 [2]. *T. melaleucus* was also figured by Daubenton in the 'Planches Enluminées,' and thus received names both from Boddaert and Gmelin, those of the latter author being usually adopted by writers prior to 1856. Bonaparte also described the Venezuelan bird under the title of *T. beauperthuyi*; but we can see no really tangible grounds for their separation.

Costa Rica is the northern limit of the range of this species; but neither here nor in the adjoining parts of the State of Panama does it appear to be abundant. On the line of the Panama railway, however, it is common enough. Salmon obtained its nest and eggs at Medellin in Colombia, and he says that it builds in high grass. The eggs are a pale salmon-colour, with a few large isolated dark-brown spots [6].

2. Tachyphonus luctuosus.

Tachyphonus luctuosus, d'Orb. & Lafr. Syn. Av. i. p. 29 [1]; Scl. P. Z. S. 1856, p. 114 [2]; 1860, pp. 274 [3], 292 [4]; Cassin, Pr. Ac. Phil. 1860, p. 141 [5]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [6]; ix. p. 100 [7]; Scl. & Salv. P. Z. S. 1864, p. 351 [8]; 1868, p. 167 [9]; 1879, p. 503 [10]; Pelz. Orn. Bras. p. 213 [11]; Finsch, P. Z. S. 1870, p. 582 [12]; Salv. Ibis, 1872, p. 317 [13].

Pyranga luctuosa, d'Orb. Voy. Am. Mér. Ois. p. 263, t. 20. f. 1, 2 [14].

Nigerrimus, tectricibus alarum minoribus et subalaribus albis; rostro nigro, mandibulæ basi plumbescente. Long. tota 5·2, alæ 5·6, caudæ 2·3, rostri a rictu 0·6, tarsi 0·6. (Descr. maris ex Angostura, Costa Rica. Mus. nostr.)

♀ olivacea, capite cinerascente, pileo saturatiore, gula albicante, corpore subtus reliquo flavo, subalaribus albis. (Descr. feminæ ex Santa Rita, Ecuador. Mus. nostr.)

Hab. Nicaragua, Chontales (*Belt* [13]); Costa Rica, Angostura [7], Tuis [7], Valza (*Carmiol*); Panama, line of railway (*M'Leannan* [6 8]), Chepo (*Arcé*), Rio Truando (*Wood* [5]). —South America generally from Colombia [10] to Guiana, Western Brazil [11], and Bolivia [1 14].

Though not uncommon in collections of birds from Costa Rica, this species of *Tachyphonus* has only been recorded from that portion of the State of Panama which lies near the South-American continent. From Chiriqui and the Province of Veraguas it appears to be absent.

On the isthmus of Darien Mr. Wood observed it at an encampment in the mountains near the river Truando. Here it frequented high trees and was rarely seen, being very shy and active [5]. Mr. Wood speaks of the female being brown; but the bird alluded to was probably the female of *T. delattrii*.

In the continent of South America, *T. luctuosus* has a very extensive range. It was first discovered in Bolivia by d'Orbigny [1], and since then has been traced over most of the tropical portions of the continent, with the exception of Eastern Brazil. In the valley of the Amazons we have but few records of it. Natterer, however, obtained it at Borba [11]; but it escaped Bartlett's observation. In Ecuador our records of it are from the western slopes of the Andes. From the lowlands of Guiana we have several examples, and thence it spreads westwards to Trinidad [12] and Venezuela [9]. *Tachyphonus luctuosus* has no near allies, though *T. nitidissimus* has a general resemblance to it; the occipital crest of that species renders it easily recognized.

b. *Uropygium flavum.*

3. Tachyphonus xanthopygius.

Tachyphonus xanthopygius, Scl. P. Z. S. 1854, p. 158, t. 69 ; 1855, p. 83, t. 90[2]; 1856, p. 116[3]; Cassin, Pr. Ac. Phil. 1860, p. 142[4]; Lawr. Ann. Lyc. N. Y. vii. p. 331[5]; Scl. & Salv. P. Z. S. 1864, p. 351[6]; 1879, p. 503[7]; Salv. Ibis, 1870, p. 109[8].

Lanio auritus, DuBus, Bull. Ac. Brux. xxii. pt. 1. p. 153[9].

Tachyphonus rubrifrons, Lawr. Pr. Ac. Phil. 1865, p. 106[10].

Tachyphonus propinquus, Lawr. Pr. Ac. Phil. 1867, p. 94[11]; Ann. Lyc. N. Y. ix. p. 101[12].

Niger, dorso postico et humeris flavissimis, fascicula post-superciliari coccinea, tectricibus subalaribus albis; rostro nigro, pedibus obscure plumbeis. Long. tota 7·0, alæ 3·5, caudæ 2·7, rostri a rictu 0·8, tarsi 0·8. (Descr. maris ex Remedios, Colombia. Mus. nostr.)

♀ nigro-cinerea, subtus dilutior, dorso postico flavo, subalaribus albis. (Descr. exempl. ex Lion Hill, Panama. Mus. nostr.)

Hab. Costa Rica, Angostura (*Carmiol* [11 12]); Panama, Veraguas (*Arcé*), Lion Hill (*M'Leannan* [5 6 10 11]), Rio Truando (*Wood* [4]).—Colombia [1 2 7 9].

A remarkable species whose range is restricted to the northern valleys of Colombia and Central America, as far north as Costa Rica. The northern birds have been separated by Mr. Lawrence, first under the name of *T. rubrifrons* and then as *T. propinquus*. The former name was suggested by a mark on the forehead of the type, which subsequently proved to be a stain, and so a new name was proposed. So far as we can see, *T. propinquus* rests upon the alleged similarity of the sexes, both male and female having the coloration of the female of *T. xanthopygius*. We are not in a position to disprove this statement, as our three specimens from the State of Panama are all in female dress; but we hesitate, without further evidence, to admit that, at least at some season of the year, the male never has a dress like that of the bird of Colombia. The northern birds are so exactly like the female of the true *T. xanthopygius* that it would be most unlikely that the males did not also at least resemble each other.

Mr. Sclater's first description of *T. xanthopygius* was based upon a female bird from the interior of Colombia [1]; but the following year he obtained and described the male from the same source [2].

4. Tachyphonus chrysomelas. (Tab. XXI. fig. 1.)

Tachyphonus chrysomelas, Scl. & Salv. P. Z. S. 1869, p. 440, t. 32[1]; Salv. P. Z. S. 1870, p. 188[2].

Splendide aureus, oculorum ambitu angusto, interscapulio, alis caudaque nigerrimis; remigum marginibus internis et subalaribus necnon rectricum externarum in pogonio interno limbis angustis flavicanti-albis; rostro et pedibus nigris. Long. tota 4·6, alæ 2·5, caudæ 1·8, rostri a rictu 0·65, tarsi 0·65.

♀ olivacea, alis caudaque fuscis olivaceo limbatis; subtus flavicans, hypochondriis olivaceis; subalaribus et remigum marginibus internis albis. (Descr. maris et feminæ ex Cordillera del Chucu, Panama. Mus. nostr.)

Hab. Panama, Cordillera del Chucu (*Arcé* [1 2]).

The only specimens of this beautiful species of *Tachyphonus* are those obtained by Arcé at the above locality, and which served as the types of the original description [1].

T. chrysomelas, as its name implies, is brilliantly coloured golden yellow and black. It is the smallest species of the genus, being of slighter build than *T. luctuosus*, having a shorter tail, but a wing of the same length as that of that bird. The bill is unusually slender, almost recalling some of the Mniotiltidæ, so much so that the female might easily be hurriedly passed over as belonging to a species of *Geothlypis*.

B. *Vertex cristatus.*

5. Tachyphonus delattrii.

Tachyphonus delattrii, Lafr. Rev. Zool. 1847, p. 72 [1]; Bp. Consp. i. p. 237 [2]; Scl. P. Z. S. 1856, p. 116 [3]; Cassin, Pr. Ac. Phil. 1860, p. 142 [4]; 1865, p. 171 [5]; Lawr. Ann. Lyc. N. Y. vii. p. 331 [6]; ix. p. 100 [7]; Scl. & Salv. P. Z. S. 1864, p. 351 [8]; 1879, p. 503 [9]; Ex. Orn. p. 67, t. 34 [10]; Salv. P. Z. S. 1867, p. 140 [11]; Ibis, 1874, p. 308 [12].

Chlorospingus brunneus, Lawr. Ann. Lyc. N. Y. x. p. 395 [13].

Fusco-niger; crista verticali læte fulvo-aurantia; rostro nigro ad mandibulæ basin pallido, pedibus obscure fuscis. Long. tota 5·5, alæ 3·0, caudæ 2·7, rostri a rictu 0·7, tarsi 0·7. (Descr. maris ex Santiago de Veraguas, Panama. Mus. nostr.)

♀ brunnea; dorso, alis et cauda saturatioribus, subtus gutture paulo dilutiore. (Descr. feminæ ex Remedios, Colombia. Mus. P. L. Sclater.)

Hab. Costa Rica, Pacuar (*Carmiol* [5 7]), Irazu (*Zeledon* [13]); Panama, Santa Fé, Santiago de Veraguas (*Arcé* [10]), Lion Hill (*M'Leannan* [5 8]), Rio Truando (*Wood* [4]).—Colombia [9]; Ecuador?

T. delattrii was first discovered by the French traveller Delattre at San Buenaventura, on the west coast of Colombia [1], in which country Salmon also found it, both at Remedios and Nechi, in the State of Antioquia [9]; it also occurs in the trade collections sent from Bogota. We have a specimen from Pasto in Northern Ecuador, which is the most southern point to which we have traced the species with certainty; for the bird obtained by Fraser at Pallatanga, and supposed to be the female of *T. delattrii*, and figured as such [10], may possibly belong to another species [12].

In the limits of our country *T. delattrii* has been observed at several points—at the falls of the Truando [4], on the line of the Panama railway [6], in the neighbourhood of Santa Fé [11], and in the eastern parts of Costa Rica [5]; but it appears to be nowhere common. Mr. Wood says that he only once met with it at the falls of the Truando, and then about twenty specimens, which seemed to be in company, were noticed, and several obtained, though they were very shy and not easily approached. All chattered together like a flock of Blackbirds (Icteridæ), and appeared to be feeding on a berry that was abundant [4]. Salmon says that it feeds on fruit [9]; but he did not obtain its nest or eggs, which remain unknown.

6. Tachyphonus nitidissimus. (Tab. XXI. figg. 2 ♂, 3 ♀.)

Tachyphonus nitidissimus, Salv. P. Z. S. 1870, p. 188 [1]; Ibis, 1874, p. 308 [2].

Chlorospingus axillaris, Lawr. Ann. Lyc. N. Y. x. p. 395 [3].

Tachyphonus luctuosus, Cassin, Pr. Ac. Phil. 1865, p. 171 [4]?

itenti-niger, crista rufo-aurantiaca, tectricibus alarum minoribus et subalaribus albis; rostro nigro, mandibulæ basi albicante, pedibus fuscis. Long. tota 5·5, alæ 2·7, caudæ 2·5, rostri a rictu 0·6, tarsi 0·7.

♀ olivacea subtus flavescentior; alis et cauda fuscis extus olivaceo limbatis, subalaribus albis. (Descr. maris et feminæ ex Bugaba, Panama. Mus. nostr.)

Hab. Costa Rica, Valza (*Carmiol*), Irazu (*Zeledon* [3]); Angostura (*Carmiol* [4]); Panama, Bugaba [1], Vivalá (*Arcé*).

This is a very distinct species, which at first sight might be mistaken for *T. luctuosus*, the black plumage and white wing-coverts as well as the size being much as in that species. The rufous-orange crest, however, at once distinguishes it from *T. luctuosus*, and recalls *T. delattrii*, which again has duller plumage and no white on the wing.

T. nitidissimus was discovered by Arcé in the neighbourhood of Chiriqui, where it would appear to be not uncommon. His collections contained examples of both sexes, as well as young males in transition plumage. A bird in the latter dress, which was obtained during the late Prof. Gabb's expedition to Talamanca in Costa Rica, was subsequently described by Mr. Lawrence as *Chlorospingus axillaris* [3]. We have never seen an adult male from so far north; but Salvin examined Mr. Lawrence's type in 1874 and recognized it as being *T. nitidissimus* [2].

Cassin seems to have had specimens of this species before him when writing his notes on "Conirostral Birds from Costa Rica" [4], as he speaks of nearly all the males of the bird he calls *Tachyphonus luctuosus* having a concealed but well-defined coronal spot of pale yellow.

[Note.—A species of *Tachyphonus* apparently allied to *T. melaleucus* was described by J. and E. Verreaux (Rev. Zool. 1855, p. 351) from "Central America" as *Pyrrota valerii*. It was placed by Mr. Sclater (P. Z. S. 1856, p. 114) next to *T. melaleucus*, which it resembles, except that the wings are wholly black. We have not yet met with a bird answering to this description.

Tachyphonus lacrymosus, DuBus (=*Pœcilothraupis lunulata*) is stated by Bonaparte (Consp. i. p. 237) to be found in Mexico; but this is clearly an error.]

CHLOROSPINGUS.

Chlorospingus, Cabanis, Mus. Hein. i. p. 139 (1851). (Type *C. leucophrys*, Cab.=*C. ophthalmicus* (DuBus)).

The researches of recent travellers in the mountainous countries of Western South America have added greatly to our knowledge of the extent of this genus, so that it now musters some twenty-six or twenty-seven species. All of these appear to affect forests situated at some considerable elevation above the level of the sea. Thus *C. postocularis*, with which we are most familiar, is found in forests lying between 5000 and 10,000 feet.

PA. 28

In our region seven species occur, three of which are peculiar to Mexico and Guatemala; three other peculiar species are found in Costa Rica and Panama, and the only widely ranging one is *C. albitemporalis*, which spreads from Costa Rica to Bolivia.

The Central-American members of *Chlorospingus* are all very homogeneous; but some of the South-American species, such as the more slenderly built *C. verticalis*, are decidedly aberrant. The stouter more robust species with which we here have to do are very Fringilline in their general appearance; the bill is conical and stout, but less than in the next genus; the maxillary notch is almost obsolete; the wings are moderately long, the third, fourth, and fifth quills being nearly equal; the tail in the more typical species is moderately long and slightly rounded; olive is the prevailing hue of the plumage, and the sexes are alike in colour.

A. *Macula postocularis alba.*

1. Chlorospingus ophthalmicus.

Arremon ophthalmicus, DuBus, Bull. Ac. Brux. xiv. pt. 2, p. 106[1].

Chlorospingus ophthalmicus, Scl. P. Z. S. 1856, pp. 89[2], 302[3]; 1859, pp. 364[4], 377[5]; Cab. J. f. Orn. 1866, p. 162[6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549[7]; Salv. Cat. Strickl. Coll. p. 196[8].

Chlorospingus leucophrys, Cab. Mus. Hein. i. p. 139[9].

Supra oleagineo-olivaceus, pileo et capitis lateribus saturate brunneis, plaga suboculari nigricante, macula postoculari alba, loris albidis; subtus gula et abdomine medio albis, pectore, hypochondriis et crisso flavescenti-olivaceis; rostro nigro, pedibus corylinis. Long. tota 5·8, alæ 2·9, caudæ 2·4, rostri a rictu 0·55, tarsi 0·85. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico [1 2 6] (*le Strange*), San Pedro (*Galeotti*[8]), Cordova (*Sallé*[2 3]), Jalapa[2] (*De Oca*[4], *Höge*), Totontepeque (*Boucard*[5]), temperate and hot regions of Vera Cruz (*Sumichrast*[8]).

We have been accustomed hitherto to include the Guatemalan *Chlorospingus* of this form under the name of *C. ophthalmicus*, but we now find on closer examination that the brown-headed Mexican bird is peculiar to that country, and that in Guatemala two forms are found which are not only distinct from one another, but also from the bird now under consideration.

Chlorospingus ophthalmicus is a well-known bird in Mexico, chiefly in the upland forests, but is also found in the hot country, according to Sumichrast[7]. It only occurs in the mountains of the southern parts of the Republic, where it has been met with by many travellers.

2. Chlorospingus postocularis.

Chlorospingus postocularis, Cab. J. f. Orn. 1866, p. 163[1].

Hab. Guatemala[1], Volcan de Fuego (*O. S. & F. D. G.*).

The dark uniformly grey head distinguishes this species from *C. ophthalmicus* of

Mexico, *C. olivaceus* on the other hand having the middle of the crown ashy grey, the sides being darker. Dr. Cabanis described the species from a Guatemalan specimen, but without stating the part of the country from which it came. The only birds in our collection that fully answer to Dr. Cabanis's description were all obtained in volcanoes of Agua and Fuego at elevations varying from 3000 to 8000 feet. This species is a bird of the forest, where it is met with in parties of six or more individuals. It is sprightly and active, hopping restlessly about the lower branches of the trees, often coming near an observer, when the white eye-spot is very conspicuous.

Nothing is known of its nest or eggs.

3. **Chlorospingus olivaceus.**

Poospiza olivacea, Bp. Consp. i. p. 473[1].
Chlorospingus olivaceus, Scl. P. Z. S. 1856, p. 90[2].
Chlorospingus ophthalmicus, Scl. & Salv. Ibis, 1860, p. 32[3].

Hab. Guatemala, Coban[3] (*O. S.*), Kamkal, San Gerónimo (*O. S. & F. D. G.*).

The *Chlorospingus* of Alta Vera Paz is distinguished by having a light grey streak running along the middle of the occiput, and is doubtless the bird described by Bonaparte under this name, though the locality he doubtfully gives as "Brazil" is incorrect. Mr. Sclater examined the type in the Paris Museum, and recognized a bird in his collection as belonging to the same species, and both as probably prepared by the French collector Delattre, who, as is well known, explored the country round Coban.

Our example from Kamkal, a village a little below Coban, is rather darker on the head than our Coban specimens, but the lighter occiput is still visible.

The Coban bird was called *C. ophthalmicus* in 1860[3], but it is clearly distinct from the Mexican species, which has a brown head.

4. **Chlorospingus albitemporalis.**

Tachyphonus albitempora, Lafr. Rev. Zool. 1848, p. 12[1].
Chlorospingus albitemporalis, Scl. P. Z. S. 1856, p. 89[2]; Cassin, Pr. Ac. Phil. 1865, p. 171[3]; Lawr. Ann. Lyc. N. Y. ix. p. 101[4]; Salv. P. Z. S. 1870, p. 188[5]; Scl. & Salv. P. Z. S. 1868, p. 627[6]; 1879, p. 602[7].

Supra læte olivaceus; pileo et capitis lateribus nigricanti-brunneis, superciliis posticis cum macula postoculari albis; subtus gutture fuscescenti-albido, striis minutis fuscis adsperso, abdomine medio albo; pectore, hypochondriis et crisso viridescenti-flavis; rostro nigricante, pedibus obscure plumbeis. Long. tota 5·2, alæ 2·7, caudæ 2·3, rostri a rictu 0·52, tarsi 0·8. (Descr. maris ex Volcan de Chiriqui, Panama. Mus. nostr.)
♀ mari omnino similis.

Hab. Costa Rica, San José (*v. Frantzius*[3 4]), Turrialba[4], Barranca[4], Dota[4] (*Carmiol*), San Mateo[4] (*Cooper*); Panama, Volcan de Chiriqui (*Arcé*[5]).—Colombia[1 2]; Venezuela[2 6]; Bolivia[2 7].

The top and sides of the head in Central-American specimens of this species are rather browner than in Bolivian examples, and the breast less golden; but these differences are very slight. The species has a close ally in the true *C. ophthalmicus* of Mexico, but it may be distinguished by the darker olive colour of the back, the darker head, the smaller postocular white spot, and the less pronounced dark mark under the eye.

C. albitemporalis has a much wider range than any of the other Central-American members of the genus, but it has not been observed north of the mountain-region of Costa Rica. Here, however, it appears to be common, and also in the adjoining State of Panama.

5. **Chlorospingus punctulatus.** (Tab. XXII. fig. 1.)

Chlorospingus punctulatus, Scl. & Salv. P. Z. S. 1869, p. 440 [1]; Salv. P. Z. S. 1870, p. 188 [2].

Supra olivaceus; alis caudaque fusco-nigris, olivaceo limbatis; pileo toto cum nucha et capitis lateribus nigris; macula postoculari alba; subtus flavicanti-olivaceus, pectore aurantiaco tincto, gutture nigro sparsim punctulato; ventre medio albicante; campterio alari et subalaribus limonaceo-flavis; rostro et pedibus nigris. Long. tota 5·2, alæ 2·7, caudæ 2·2, rostri a rictu 0·6, tarsi 0·9. (Descr. maris ex Cordillera del Chucu, Panama. Mus. nostr.)

♀ mari omnino similis.

Hab. Panama, Cordillera del Chucu (*Arcé* [1] [2]).

The only specimens we have received of this distinct species were those obtained by Arcé in the Cordillera del Chucu in 1869, which furnished the types of the description and of the figure now given.

The white spot behind the eye associates *C. punctulatus* with *C. ophthalmicus* and its allies, but it differs from these in having a black head, and especially in the throat being spotted with black. This latter character separates it from *C. pileatus*, which has also a black head, and is further distinguished by its superciliary and postocular white streaks.

B. *Stria superciliaris (cum altera postoculari conjuncta) alba.*

6. **Chlorospingus pileatus.** (Tab. XXII. fig. 2.)

Chlorospingus pileatus, Salv. P. Z. S. 1864, p. 581 [1]; Lawr. Ann. Lyc. N. Y. ix. p. 101 [2].

Olivaceus, capite et nucha nigris, hujus et pilei postici lateribus cum stria postoculari concurrentibus albis; superciliis ipsis et loris nigris, gula, macula longa rictali et abdomine albis; pectore et corporis lateribus olivaceis illo flavescentiore; alis et cauda fuscis olivaceo marginatis; campterio flavo, subalaribus albidis; rostro obscure plumbeo, pedibus fuscis. Long. tota 5·4, alæ 2·75, caudæ 2·6, rostri a rictu 0·6, tarsi 1·0. (Descr. exempl. typ. ex Irazu, Costa Rica. Mus. nostr.)

Juv. subtus flavescens undique fusco striatus, mandibula flavicante. (Descr. exempl. ex Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica, Irazu (*Arcé* [1], *Rogers*), Poas, Rancho Redondo (*Carmiol* [2]); Panama, Volcan de Chiriqui (*Arcé*).

Of this species very little is known. The first specimens that reached us were

obtained by Arcé in the volcano of Irazu or Cartago, and since then others have been sent to the Smithsonian Institution from the same neighbourhood. A specimen has also reached us from the volcano of Chiriqui, showing a wider extension of its range.

The black head with the two conspicuous lines of white on the side running into one another render *C. pileatus* a species of easy recognition.

The figure represents one of the types from Costa Rica.

C. *Macula postocularis nulla.*

7. **Chlorospingus hypophæus.** (Tab. XXII. fig. 3.)

Chlorospingus hypophæus, Scl. & Salv. P. Z. S. 1868, p. 389[1]; Salv. P. Z. S. 1870, p. 188[2].

Supra flavicanti-olivaceus, loris cinereis; subtus pallide fulvescenti-fuscus; gutture flavo, medialiter fere albicante, hypochondriis et crisso olivaceo perfusis; rostro nigricanti-corneo, mandibula ad basin albicante; pedibus fusco-olivaceis. Long. tota 5·5, alæ 2·7, caudæ 2·0, rostri a rictu 0·65, tarsi 0·9. (Descr. maris ex Chitra, Panama. Mus. nostr.)

♀ mari omnino similis.

Hab. Panama, Calovevora [1 2], Chitra [2], Boquete de Chitra [2] (*Arcé*).

This is another of Arcé's discoveries in the higher mountains of the State of Panama, whence he has sent us several specimens.

It has a near ally in *C. flavigularis* of Colombia, Ecuador and the Upper Amazons, but differs in being somewhat smaller, the under surface dingy instead of clear cinereous, and in the middle of the throat being whitish. *C. semifuscus* of Ecuador is another near ally, but differs chiefly in having a darker head and in wanting the yellow throat.

The specimen figured is a male from Chitra, Panama.

BUARREMON.

Buarremon, Bonaparte, Consp. Av. i. p. 483 (1850); Scl. P. Z. S. 1856, p. 84.
Chrysopoga, Bp. loc. cit. p. 480.
Pezopetes, Cabanis, J. f. Orn. 1860, p. 415.

The limits of this genus have been very differently drawn by different authors. Bonaparte, who instituted it, at the same time proposed two other genera, both of which are now usually merged in *Buarremon.* But he included in these several species now considered to belong to the Fringillidæ, into which family he placed *Buarremon* and the others, near *Hæmophila*, *Atlapetes*, *Pyrgisoma*, *Pipilo*, &c. Dr. Cabanis, again, restricted *Buarremon* to *B. assimilis* and *B. brunneinucha*, and placed *B. albinucha* and *B. pallidinucha* in the genus *Atlapetes*, and all of them in a subfamily *Pitylinæ* of the Fringillidæ.

The present arrangement is that of Mr. Sclater, who extended the limits of *Buarremon*, making it embrace four sections—(a) *Buarremon*, (b) *Chrysopoga*, (c) *Carenochrous*, and (d) *Pipilopsis.* In the 'Nomenclator Avium Neotropicalium' twenty

species were included in *Buarremon* as thus expanded; and since then no less than thirteen have been added to it. With the single exception of the Guianan *B. personatus*, these are all distributed over the mountainous countries of Western America (including Venezuela), from Bolivia to Southern Mexico. Within our limits eight species are included, half of which are peculiar to the region. Of the others, one, *B. brunneinucha*, is the most widely distributed of the whole genus, ranging from Mexico to Peru; both *B. gutturalis* and *B. albinucha* extend from Mexico to Colombia, but the latter is not found in the intervening country; lastly, *B. assimilis*, of Colombia, Ecuador, and Peru, has only once been obtained in Costa Rica. Of the peculiar species, *B. virenticeps* has only been found as yet in Mexico. *B. capitalis*, *B. crassirostris*, and *B. tibialis* are all birds of the highlands of Costa Rica and Panama.

Buarremon is another step in the direction of the Fringillidæ, which it resembles in the stout conical bill, which in *B. crassirostris* is especially strong; there is a small notch near the end of the commissure of the maxilla; the wings are rather long and rounded, the fourth, fifth, and sixth quills being the longest; the tail is elongated and much rounded; the tarsi and toes generally long and strong, to suit a terrestrial habit (this is especially so in *B. capitalis*); and the sexes are alike in plumage.

Though we adopt the limits and position of the genus *Buarremon* assigned to it by Mr. Sclater, we feel at the same time that its relationship with such Fringilline genera as *Pyrgisoma*, *Atlapetes*, and thence to some members of *Pipilo*, is by no means unimportant, and that a close examination of more characters than such as are afforded by the study of skins will very probably considerably modify the classification now used.

1. Buarremon assimilis.

Tanagra assimilis, Boiss. Rev. Zool. 1840, p. 67 [1].

Buarremon assimilis, Bp. Consp. i. p. 484 [2]; Scl. P. Z. S. 1856, p. 85 [3]; 1859, p. 441 [4]; 1860, p. 76 [5]; Salv. Ibis, 1874, p. 308 [6]; Cat. Strickl. Coll. p. 197 [7]; Scl. & Salv. P. Z. S. 1875, p. 234 [8]; 1879, p. 504 [9]; Tacz. P. Z. S. 1880, p. 196 [10].

Buarremon assimilis, ? Lawr. Ann. Lyc. N. Y. ix. p. 101 [11].

Olivaceus, pileo et capitis lateribus nigris; superciliis, stria occipitali cum cervice postica et laterali cinereis; subtus albus, hypochondriis et crisso olivacescenti-cinereis; rostro nigro, pedibus corylinis. Long. tota 7·5, alæ 3·3, caudæ 3·3, rostri a rictu 0·7, tarsi 1·15. (Descr. feminæ ex Medellin, Colombia. Mus. nostr.)

♂ feminæ omnino similis.

Hab. Costa Rica, Guaitil (*Carmiol* [11]).—Colombia [1 2 3 7 9]; Ecuador [3 4 5]; Peru [10]; Venezuela [8].

The only recorded instance of the occurrence of this species within our limits is that given by Mr. Lawrence, who included it in his list of Costa-Rican birds. That author had some doubts as to whether the Costa-Rican specimen was really referable to *B. assimilis*, stating that the bill was larger, the colour of the cheeks deeper black, and the tarsi shorter than in the typical Bogota bird [11].

Salvin, who examined the Costa-Rican specimen in 1874, came to the conclusion that it was not really separable from *B. assimilis*, and attributed the difference of the size of the bill to the feathers being rubbed off the base in the Costa-Rican example, giving it an appearance of greater size; the difference in the colour of the cheeks is due to the feathers being more closely set in the preparation of the skin.

In South America *B. assimilis* is well known from Colombia to Peru. In the latter country Stolzmann obtained its eggs at Callacate. These are described by M. Taczanowski as of a uniform pale greenish colour. The iris is stated to be of a brownish cherry-colour [10].

2. Buarremon virenticeps.

Buarremon virenticeps, Bp. Compt. Rend. xli. p. 657 [1]; Scl. P. Z. S. 1856, p. 85 [2]; Cat. Am. B. p. 90 [3].

Fringilla quadrivittata, Licht. Mus. Berol. (*fide* Sclater).

B. assimili affinis, sed capitis striis et cervice tota olivacescentibus dorso fere concoloribus; subtus hypochondriis et crisso fuscescentioribus. Long. tota 7·0, alæ 3·2, caudæ 3·6, rostri a rictu 0·7, tarsi 1·1. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. Mexico [1] (*le Strange, Boucard*).

Though now well known as an inhabitant of Southern Mexico, the name of *B. virenticeps* is absent from the lists of birds obtained by Sallé, Boucard, and others, published from time to time by Mr. Sclater. We have, however, a specimen from M. Boucard; Mr. le Strange also obtained examples, and we have seen others in Mr. Sclater's and other collections.

B. virenticeps is evidently allied to *B. assimilis*, but may at once be distinguished by the occipital and superciliary stripes of the head being olivaceous instead of grey.

3. Buarremon brunneinucha.

Embernagra brunneinucha, Lafr. Rev. Zool. 1839, p. 97 [1].

Buarremon brunneinuchus, Scl. P. Z. S. 1856, pp. 85 [2], 302 [3]; 1858, pp. 72 [4], 303 [5]; 1859, pp. 138 [6], 364 [7], 377 [8]; 1864, p. 174 [9]; Scl. & Salv. Ibis, 1859, p. 15 [10]; P. Z. S. 1868, p. 627 [11]; 1875, p. 234 [12]; 1879, p. 504 [13]; Cab. J. f. Orn. 1860, p. 414 [14]; Cassin, Pr. Ac. Phil. 1865, p. 170 [15]; Salv. P. Z. S. 1867, p. 140 [16]; 1870, p. 189 [17]; Cat. Strickl. Coll. p. 198 [18]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [19]; Lawr. Ann. Lyc. N. Y. ix. p. 101 [20]; v. Frantz. J. f. Orn. 1869, p. 300 [21]; Tacz. P. Z. S. 1874, p. 515 [22]; 1879, p. 228 [23]; 1880, p. 196 [24].

Arremon frontalis, Tsch. Faun. Per. p. 212 [25].

Buarremon xanthophrys, Cab. Mus. Hein. i. p. 141 [26].

Olivaceus, alis et cauda brunnescentioribus, pileo postico et nucha castaneis utrinque cinnamomeo limbatis, fronte et capitis lateribus nigris illa nigro trimaculata; subtus gula et abdomine medio albis, pectore nigro, hypochondriis et crisso olivaceo-cinereis; rostro nigro, pedibus corylinis. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

♀ mari omnino similis.

Juv. inornatus; fere omnino obscure olivaceus, capite summo brunnescente. (Descr. juv. ex Vera Paz, Guatemala. Mus. nostr.)

Hab. Mexico [1] (*le Strange*), Cordova (*Sallé* [3]), valley of Mexico (*White* [9]), Jalapa (*de Oca* [7]), temperate and alpine region of Vera Cruz (*Sumichrast* [19]), La Parada [5], Teotalcingo [8] (*Boucard*); Guatemala [2] (*Skinner* [10]), Volcan de Fuego (*O. S. & F. D. G.*); Costa Rica (*v. Frantzius* [14 21]), Dota Mountains [15 20], Barranca [20], Grecia [20] (*Carmiol*); San José (*v. Frantzius* [20]), Irazu (*Rogers*); Panama, Volcan de Chiriqui [17], Cordillera de Tolé [16], Santiago de Veraguas [16], Calovevora [17], Calobre (*Arcé*).—Colombia [2 13 18]; Ecuador [4 6]; Peru [22 23 24 25]; Venezuela [2 11 12 26].

This is by far the best-known member of the genus *Buarremon*, having a wide range extending from Southern Mexico to Peru, and spreading eastwards to Venezuela. It is, however, a denizen of the higher country, and is never found in the forests of the lowlands. In the woods of the Volcan de Fuego in Guatemala, lying between 6000 and 8000 feet, it is a common bird, and was usually observed in pairs scratching on the ground amongst dead leaves.

Salmon, who obtained its eggs in the State of Antioquia, describes them as nearly white, faintly tinged with very pale greenish blue [13].

B. brunneinucha has no near ally in our country, being distinguished by its chestnut head, the forehead being black, with a central and two lateral small white spots. In South America *B. inornatus*, from Western Ecuador, is an allied species, differing in the absence of the black pectoral band.

4. Buarremon gutturalis.

Arremon gutturalis, Lafr. Rev. Zool. 1843, p. 98 [1].

Buarremon gutturalis, Bp. Consp. i. p. 484 [2]; Scl. P. Z. S. 1856, p. 86 [3]; Salv. Ibis, 1874, p. 322 [4]; Scl. & Salv. P. Z. S. 1879, p. 504 [5].

Buarremon chrysopogon, Scl. (ex Bp.), P. Z. S. 1856, p. 86 [6]; Scl. & Salv. Ibis, 1859, p. 15 [7]; Cassin, Pr. Ac. Phil. 1865, p. 171 [8]; Lawr. Ann. Lyc. N. Y. ix. p. 101 [9]; v. Frantz. J. f. Orn. 1869, p. 300 [10]; Salv. P. Z. S. 1870, p. 189 [11].

Atlapetes chrysopogon, Cab. J. f. Orn. 1860, p. 414 [12]; 1861, p. 94 [13].

Chrysopogon typica, Bp. Consp. i. p. 480 [14].

Zonotrichia? aureigula, Bp. MS. [15]

Buarremon albinuchus, Scl. & Salv. Ibis, 1860, p. 274 [16].

Griseo-nigricans, capite nigro vitta occipitali alba; subtus griseo-albus, gula lutea; rostro nigro, pedibus corylinis. Long. tota 6·5, alæ 2·8, caudæ 3·2, rostri a rictu 0·6, tarsi 1·05. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Juv. supra brunnescens, subtus sordide albus, pectore toto indistincte fusco striato, gula flavicante. (Descr. exempl. ex Chiriqui, Panama. Mus. nostr.)

Var. gula læte aurantiaca.

Hab. Guatemala (*Skinner* [7]), Coban (*O. S.* [16]), Volcan de Fuego, Volcan de Agua, Totonicapam (*O. S. & F. D. G.*); Costa Rica (*Hoffmann* [12]), Dota Mountains [8 9]

(*Carmiol, v. Frantzius* [10]), Quebrada Honda [9], San José [10] (*v. Frantzius*), Irazu (*Rogers*), Tucurriqui (*Arcé*); PANAMA, Volcan de Chiriqui [11], Castillo [11], Calovevora (*Arcé*).—COLOMBIA [1 2 3 4 5].

The late Mr. Cassin, when writing on some birds of Costa Rica [8], stated his suspicion that *Buarremon chrysopogon*, of Bonaparte, and *Arremon gutturalis*, Lafresnaye, referred to one and the same species; and Salvin, on seeing Lafresnaye's type in the Museum of the Boston Society of Natural History, at once came to the conclusion that *Buarremon gutturalis* was the proper title for this Tanager [4].

The species is a common one in the highlands of Guatemala, being found in the forests of the volcanoes of Agua and Fuego at altitudes varying from 6000 to 8000 or 9000 feet, and in Alta Vera Paz near Coban as low as 4000 feet. Like *B. brunneinucha*, its usual resort is near or on the ground, where it searches dead leaves and rubbish for insects. When disturbed it will fly into the upper branches of the forest-trees.

In the upland forests of Costa Rica and Panama it appears to be equally common; and it is also found in similar situations in Northern Colombia.

Salmon's specimens were obtained near Medellin and Remedios, in the State of Antioquia, at an elevation of about 5000 feet above the sea [5].

He here found its eggs, which are described as of a very pale greenish blue [5], and thus resemble those of *B. brunneinucha*.

The normal colouring of the throat in this species is a pale yellow; but specimens occur in which the throat is rich orange. We have several such specimens from the State of Panama.

The specimen from Coban called *B. albinucha* [16] is a young bird of this species, in which the whole undersurface is slightly tinged with yellow. The young of both *B. gutturalis* and *B. albinucha* are thus coloured; but the yellow of *B. albinucha* is much deeper in tint than in the Coban bird.

When describing this species under the name *Chrysopoga typica*, Bonaparte gave its habitat as California, on the faith of a label in the Paris Museum [14]. The statement is doubtless erroneous. We know nothing of the species north of Guatemala.

5. Buarremon albinucha.

Embernagra albinucha, Lafr. & d'Orb. Rev. Zool. 1838, p. 165 [1].

Buarremon albinuchus, Bp. Consp. i. p. 484 [2]; Scl. P. Z. S. 1856, p. 86 [3]; 1857, p. 205 [4]; 1859, pp. 364 [5], 377 [6]; 1864, p. 173 [7]; Cat. Am. B. p. 91 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [9].

Atlapetes albinuchus, Cab. Mus. Hein. i. p. 140 [10].

Embernagra mexicana, Less. Rev. Zool. 1839, p. 42 [11].

Buarremon vitellinus, Licht. Mus. Ber. [12]

B. gutturali similis, sed corpore subtus omnino flavo distinguendus. Long. tota 6·7, alæ 2·8, caudæ 3·3, rostri a rictu 0·6, tarsi 1·05. (Descr. maris ex Totontepec, Mexico. Mus. nostr.)

Juv. subtus sordide flavicans fusco striatus. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico [2 10 11], valley of Mexico (*White* [7]), temperate region of Vera Cruz (*Sumichrast* [8]), Jalapa (*Sallé* [4], *de Oca* [5], *Deppe* [12], *Höge*), Orizaba (*Botteri* [8], *le Strange*), Totontepec (*Boucard* [6]), Oaxaca.—Colombia [1 3 9].

The range of this species is remarkable, inasmuch as it is completely severed into two parts. The northern section is restricted to Southern Mexico, and the southern to Central and Eastern Colombia. The whole of the intermediate country is occupied by the allied species *B. gutturalis*, apparently to the complete exclusion of *B. albinucha*.

In Colombia it is by no means a common bird; but not only was it originally described from a Colombian specimen in the Paris Museum, sent by Candé from the neighbourhood of Cartagena [3], but Mr. Sclater has in his possession a skin which is of the unmistakable make of the Bogota bird-hunters [8]; so that its presence in the south can hardly be questioned.

In Mexico *B. albinucha* is well known, being, as Sumichrast says, one of the characteristic birds of the temperate region between the elevations of 2000 and 3600 feet [3].

Mr. Sclater speaks of a specimen in his collection which has the throat orange-coloured, showing that the species varies in this respect just as *B. gutturalis* [8].

6. **Buarremon capitalis.** (Tab. XXIII. fig. 1.)

Pezopetes capitalis, Cab. J. f. Orn. 1860, p. 415 [1]; Salv. P. Z. S. 1870, p. 189 [2].

Buarremon capitalis, Scl. & Salv. Nomencl. Av. Neotr. p. 24 [3]; Boucard, P. Z. S. 1878, p. 55 [4].

Olivaceus, alis et cauda nigricantibus illis olivaceo limbatis, capite sumno nigro, stria occipitali, regione post-oculari et nucha cinerascentibus; subtus oleagineo-olivaceus, gula nigra, gutture imo obscure olivaceo, hypochondriis et crisso ferrugineo indutis. Long. tota 7·5, alæ 3·3, caudæ 3·4, rostri a rictu 0·7, tarsi 1·3. (Descr. exempl. ex Volcan de Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica (*v. Frantzius* [1]), Irazu (*Arcé*, *Rogers*, *Boucard* [4]); Panama, Volcan de Chiriqui (*Arcé* [2]).

Though placed in a distinct genus by Dr. Cabanis, this bird may fairly be included in *Buarremon*, the only distinction being, so far as we can see, the greater strength of the tarsi and toes. Its habits seem to resemble those of *B. brunneinucha*. M. Boucard tells us [4] that it frequents the Volcan de Irazu, going in pairs, which spend most of their time on the ground scratching in search of insects.

The only extension of the range of *B. capitalis* beyond Costa Rica is the volcano of Chiriqui, where Arcé found it and sent us several specimens, one of which is now figured.

7. **Buarremon tibialis.** (Tab. XXII. fig. 2.)

Tachyphonus tibialis, Lawr. Ann. Lyc. N. Y. viii. p. 41 [1]; ix. p. 101 [2]; v. Frantzius, J. f. Orn. 1869, p. 299 [3].

Buarremon tibialis, Scl. & Salv. Nomencl. Av. Neotr. p. 25 [4]; Boucard, P. Z. S. 1878, p. 56 [5].

Schistaceo-niger; capite toto, gula, alis et cauda nigris, tectricibus auricularibus sericeo-schistaceis; tibiis

læte flavis; rostro nigro; pedibus corylinis. Long. tota 7·4, alæ 3·4, caudæ 3·6, rostri a rictu 0·7, tarsi 1·0. (Descr. maris ex Parita, Costa Rica. Mus. nostr.)

♀ mari similis, dorso medio paulo fuscescentiore.

Hab. Costa Rica, San José [2], Dota [2], Parita (*Carmiol*), Rancho Redondo (*v. Frantzius* [3], *Carmiol* [2]), La Palma [3], Quebrada Honda (*v. Frantzius* [2 3]), Volcan de Irazu (*Arcé*, *Rogers*, *J. Cooper* [2]), Navarro (*Boucard* [5]); Panama, Volcan de Chiriqui (*Arcé*).

Mr. Lawrence when describing this species placed it in the genus *Tachyphonus*; but the almost exact similarity in the colouring of the plumage of the sexes, the general structure, and the absence of any glossiness in the pterylosis, indicate that its proper place is in *Buarremon*.

Its sombre plumage, relieved by the bright yellow tibiæ, render *B. tibialis* a remarkable bird, and it has no near allies.

It is not an uncommon species in Costa Rica, where it frequents the mountain forests. We have also received specimens from the Volcan de Chiriqui, which perhaps marks the limit of its range in a south-easterly direction.

We have figured a male from Parita, Costa Rica.

8. **Buarremon crassirostris.**

Buarremon crassirostris, Cassin, Pr. Ac. Phil. 1865, p. 170 [1]; Salv. P. Z. S. 1867, p. 140, t. 14 [2]; 1870, p. 188 [3]; Lawr. Ann. Lyc. N.Y. xi. p. 101 [4].

Buarremon mesoxanthus, Salv. P. Z. S. 1866, p. 72 [5].

Supra olivaceus, capite summo castaneo; loris, regione oculari et tectricibus auricularibus cinereo-nigris; subtus plumis gulæ medialiter albis extus et intus nigris, pectus versus cinereis; pectore, hypochondriis et crisso olivaceis, abdomine medio læte flavo; alis et cauda fusco-nigris illis extus dorso concoloribus; rostri maxilla cornea, mandibula albicante, pedibus corylinis. Long. tota 6·0, alæ 3·0, caudæ 2·6, rostri a rictu 0·75, tarsi 1·15. (Descr. maris ex Veraguas, Panama. Mus. nostr.)

♀ mari similis.

Hab. Costa Rica, Barranca (*Carmiol* [1 4]); Panama, Cordillera de Tolé [2], Cordillera del Chucu [2 3], Santiago de Veraguas [3 5] (*Arcé*).

B. crassirostris has its nearest ally in *B. castaneiceps* of Northern Colombia and Ecuador, one of the most obvious differences being its yellow abdomen. Both are rather aberrant members of *Buarremon*, having a very robust bill and shorter tail. The eggs, too, differ—those of *B. castaneiceps*, according to Salmon, being white, thickly spotted at the larger end with red, the eggs of *B. brunneinucha* being spotless pale greenish blue.

The name *B. mesoxanthus* given to Panama specimens by Salvin [5] is synonymous with that of Cassin, and, though of later date, was published prior to the arrival of the description of the latter in this country.

ARREMON.

Arremon, Vieillot, Anal. p. 32 (1816) (type *Tanagra silens*, Bodd.); Scl. P. Z. S. 1856, p. 80.

There are about twelve known species of this purely Neotropical genus, of which

only one, *Arremon aurantiirostris*, is found within our area, where, however, it is widely distributed. The South-American species are chiefly from the Subandean regions, but the best known of all, *A. silens*, spreads over the whole of the eastern portion of the continent, from Guiana and Amazonia to Brazil.

In structure and coloration *Arremon* is very homogeneous. The bill is straight, rather high, short, and conical, with an obsolete subterminal maxillary notch. The wings are short and rounded; the tail also rather short and much rounded; the tarsi are somewhat long, appropriate to a semiterrestrial habit. Most of the species have a black head, and in many of them is a vertical median cinereous stripe; the under-surface is white, and many species have a conspicuous black pectoral band. The bill is often of a rich orange or yellow; the back is either olivaceous or grey.

The species all appear to frequent the denser forests, where they are to be found in the underwood or on the ground.

1. **Arremon aurantiirostris.**

Arremon aurantiirostris, Lafr. Rev. Zool. 1847, p. 72[1]; Des Murs, Icon. Orn. t. 55[2]; Bp. Consp. i. p. 488[3]; Scl. P. Z. S. 1856, p. 83[4]; 1859, p. 377[5]; Scl. & Salv. Ibis, 1860, p. 32[6]; P. Z. S. 1864, p. 351[7]; Lawr. Ann. Lyc. N. Y. vii. p. 298[8]; viii. p. 180[9]; ix. p. 102[10]; Salv. P. Z. S. 1867, p. 140[11]; 1870, p. 188[12]; Ibis, 1872, p. 317[13]; v. Frantz. J. f. Orn. 1869, p. 300[14].

Arremon rufidorsalis, Cassin, Pr. Ac. Phil. 1865, p. 170[15]; Lawr Ann. Lyc. N. Y. ix. p. 102[16]; Salv. Ibis, 1874, p. 308[17].

Supra oleagineus, cauda fuscescentiore, capite nigro, superciliis elongatis albis, stria verticali cinerea; subtus gula et abdomine medio albis, pectore late nigro, hypochondriis fuscis oleagineo indutis; campterio alari lætissime aurantiaco; rostro aurantiaco, pedibus carneis. Long. tota 6·5, alæ 3·2, caudæ 3·0, rostri a rictu 0·7, tarsi 1. (Descr. maris ex Santa Fé, Panama. Mus. nostr.)

♀ mari persimilis.

Hab. Mexico, Playa Vicente (*Boucard*[5]); British Honduras, Belize (*Blancaneaux*); Guatemala, Coban[6], Choctum, Chisec (*O. S. & F. D. G.*); Nicaragua, Chontales (*Belt*[13]), Greytown (*Holland*[9]); Costa Rica (*v. Frantzius*[14]), San Mateo (*Cooper*[10]), Dota (*Zeledon*[10]), Guaitil (*Carmiol*[10]), Tucurriqui (*Arcé*), Turrialba (*Carmiol*[15 16]); Panama, Bugaba[12], Mina de Chorcha[12], Cordillera del Chucu[12], Santa Fé[11] (*Arcé*), Lion Hill (*M'Leannan*[7 8]), Panama (*Delattre*[1 2 4]).

Lafresnaye's description of this species was based upon Panama specimens obtained by the French collector Delattre[1]. We have since both received skins from the isthmus and observed the bird in that region. In May 1873 Salvin found a nest in the forest near Obispo Station, which was placed on the ground and prettily screened by an overhanging frond of an *Adiantum*. This nest contained young, which were not disturbed.

From Panama *A. aurantiirostris* has been traced northwards to South Mexico, where, however, it is not common, having been found at Playa Vicente alone by M. Boucard[5].

In Guatemala it is common in the forest-country north of Coban, where we obtained specimens in 1862, and whence others have been forwarded to us by native collectors.

A Costa-Rican specimen of this species was described by Cassin as *A. rufodorsalis*; but this seems to be nothing but a stained example of the well-known bird. Salvin was of this opinion when he examined the type in 1874 [17]. No similar specimens have since been obtained.

As already stated, *A. aurantiirostris* is the sole representative of the genus in Central America, beyond the limits of which it is not found. It belongs to the same group as *A. silens* of Guiana and Brazil, and has its nearest ally in *A. spectabilis* of Colombia and Ecuador, from which it differs in having a darker back and a broader black pectoral band.

SALTATOR.

Saltator, Vieillot, Anal. p. 32 (1816); Sclater, P. Z. S. 1856, p. 69.

Saltator contains about eighteen species, all of which belong to the Neotropical Region, and are spread from Mexico to Paraguay and the Argentine Republic. Five species occur within our limits, four of them being peculiar to the country, only one, *S. albicollis*, spreading beyond into the northern portions of South America.

The members of the genus *Saltator* are all stoutly-built birds, with strong Fringilline bills, *S. atriceps* being the largest species of Tanager known. The sexes are coloured alike; the prevailing colour of the plumage is olive-grey or brown above, and generally grey beneath, one section being streaked with brown. The bill is strong, somewhat elongated, the culmen being much arched; the commissure is nearly simple, but there is a subapical maxillary notch; the wings are short and rounded, and the tail long and also much rounded; the tarsi are short, these birds being strictly aboreal in their habits.

1. Saltator atriceps.

Tanagra (*Saltator*) *atriceps*, Less. Cent. Zool. p. 208, t. 69 [1].

Saltator atriceps, Bp. Consp. i. p. 488 [2]; Cab. Mus. Hein. i. p. 142 [3]; Scl. P. Z. S. 1856, pp. 69 [4], 302 [5]; 1859, p. 364 [6], 377 [7]; 1864, p. 174 [8]; Scl. & Salv. Ibis, 1859, p. 14 [9]; P. Z. S. 1864, p. 351 [10]; 1870, p. 836 [11]; Moore, P. Z. S. 1859, p. 58 [12]; Taylor, Ibis, 1860, p. 111 [13]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [14]; ix. pp. 102 [15], 200 [16]; Bull. U. S. Nat. Mus. no. 4, p. 19 [17]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [18]; Salv. Cat. Strickl. Coll. p. 199 [19]; P. Z. S. 1883, p. 421 [20]; Boucard, P. Z. S. 1883, p. 443 [21].

Tanagra gnatho, Licht. Preis-Verz. mex. Vög. p. 2 [22] (*cf.* J. f. Orn. 1863, p. 56).

Arremon giganteus, Bp. P. Z. S. 1837, p. 117 [23].

Pyrrhula raptor, Cabot, Journ. Bost. Soc. N. H. v. p. 90, t. 12 [24].

Supra olivaceus, capite toto cum mento et torque pectorali nigris, superciliis indistincte albis, gutture medialiter albo; corpore reliquo subtus cinereo, crisso ferrugineo; rostro nigro, mandibula interdum flavicante, pedibus plumbeis. Long. tota 10·4, alæ 4·6, caudæ 5·0, rostri a rictu 1·0, tarsi 1·1. (Descr. maris ex Volcan de Agua, Guatemala. Mus. nostr.)

♀ mari similis.

Obs. Specimina quædam capitis lateribus frequentissime griseo notatis, torque pectorali quoque interdum obsoleta, differunt.

Hab. Mexico [1 2 3 8 22], hot and temperate regions of Vera Cruz (*Sumichrast* [18]), Tierra Caliente of Atlantic coast (*le Strange*), Cordova (*Sallé* [4 5]), Jalapa (*de Oca* [6]), Papantla (*Deppe* [4]), Playa Vicente (*Boucard* [7]), Guichicovi, Santa Efigenia (*Sumichrast* [17]), Yucatan (*Cabot* [24]), Merida in Yucatan (*Schott* [16], *Gaumer* [21]); Honduras, Belize (*Blancaneaux*); Guatemala (*Velasquez de Leon* [23], *Constancia* [19]), Escuintla [4], Coban, Yzabal, Choctum, Savana Grande, Zapote, Mirandilla, Santa Lucia Cosamalguapa, San Agustin, Retalhuleu (*O. S. & F. D. G.*); Honduras, Omoa (*Leyland* [12]), San Pedro (*G. M. Whitely* [11]), Comayagua (*Taylor* [9 13]); Nicaragua, Hato Viejo (*Baxter*); Costa Rica, Pacuar (*Carmiol* [15]); Panama, Lion Hill (*M'Leannan* [10 14]), Obispo (*O. S.*), Panama city (*A. H. Markham* [20]).

Lesson's name for this species, *Saltator atriceps*, and Lichtenstein's, *Tanagra gnatho*, were both published in 1830; but in this case Lesson's has been generally used. In the case of *Tanagra abbas*, Lichtenstein's title has been adopted. Of course, both practices cannot be legally correct; but, as the actual date of the publication of neither work can be accurately ascertained, the names in use may as well be adhered to.

Bonaparte's name, *Arremon giganteus*, based on a Guatemalan specimen, is a simple synonym of *Saltator atriceps*; so also is Cabot's *Pyrrhula raptor*: this last name was proposed for the Yucatan bird, of which we have specimens differing in no way from our Central-American series.

Saltator atriceps is a characteristic bird of the hotter country on both sides of the mountains of Mexico and Central America, as far south as the isthmus of Panama. Sumichrast states that in Southern Mexico it is found as high as 4000 feet above the sea. In Guatemala it occurred to us usually at lower elevations, and was particularly common in the forest-country of the mountains sloping towards the Pacific, at an elevation of about 2500 feet and under; and in Vera Paz it was also abundant in the neighbourhood of Choctum and similar situations. *Saltator atriceps* is rather a noisy bird, with a harsh note, and is generally seen in low trees bordering a clearing in the forested districts. Mr. Gaumer says it is very abundant near Merida in Yucatan, adding that it feeds on the flowers of a *Convolvulus*, and that he found other flowers, green leaves, and sometimes fruit in specimens which he dissected [21].

There is considerable difference between individual specimens of this species as regards the black band crossing the chest. In many examples this band is obsolete, the white throat extending to the grey of the underparts; in others a few black feathers appear, and every gradation can be traced to a band half to three quarters of an inch wide. Another point of still greater variation is in the colour of the cheeks. In nearly all our examples there is some admixture of grey with the black feathers; but in some they are wholly black. A rarer form of variation is in the colour of the throat,

which in some specimens, usually Mexican, is of a rich chestnut instead of white; but intermediate forms occur connecting the two. The colour of the bill, too, is subject to variation, the mandible being often yellow, and sometimes the tip of the maxilla as well.

These varieties are probably due to age and season, as they cannot be associated with any particular district.

2. Saltator magnoides.

Saltator magnoides, Lafr. Rev. Zool. 1844, p. 41 [1]; Bp. Consp. i. p. 489 [2]; Scl. P. Z. S. 1856 pp. 69 [3], 142 [4], 302 [5]; 1859, pp. 364 [6], 377 [7]; 1864, p. 174 [8]; Scl. & Salv. Ibis, 1859, p. 14 [9]; P. Z. S. 1864, p. 351 [10]; 1870, p. 836 [11]; Cab. J. f. Orn. 1860, p. 416 [12]; Lawr. Ann. Lyc. N. Y. viii. p. 180 [13]; ix. p. 102 [14]; Salv. P. Z. S. 1867, p. 140 [15]; 1870, p. 189 [16]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [17]; v. Frantz. J. f. Orn. 1869, p. 300 [18].

Saltator gigantodes, Cab. Mus. Hein. i. p. 142 [19].

Saltator magnus, Lawr. Ann. Lyc. N. Y. vii. p. 297 [20].

Saltator intermedius, Lawr. Proc. Ac. Phil. 1864, p. 106 [21]; Ann. Lyc. N. Y. viii. p. 176 [22].

Supra olivaceus; capite cinereo, pileo olivaceo intermixto, superciliis albis; subtus cinereus, gula media castanea undique nigro late circumcincta, crisso ferrugineo; rostro nigro, pedibus plumbeis. Long. tota 8·0, alæ 3·9, caudæ 3·8, rostri a rictu 0·95, tarsi 0·9. (Descr. exempl. ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico [1 2 8 19], Cordova (*Sallé* [5]), Jalapa (*de Oca* [6]), Playa Vicente (*Boucard* [7]), hot region of Vera Cruz (*Sumichrast* [17]); Guatemala (*Skinner* [9]), Coban [3], Chisec, Choctum (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [11]); Nicaragua, Greytown (*Holland* [13]); Costa Rica (*v. Frantzius* [12 18], *Ellendorf* [12]), Turrialba (*Carmiol* [14], *Arcé*), San José and Angostura (*Carmiol* [14]), Bebedero (*Arcé*), Irazu (*Rogers*); Panama, Chiriqui (*Bridges* [4], *Arcé* [16]), David (*Hicks* [22]), Bugaba [16], Chitra [16], Mina de Chorcha [16], Calovevora [16], Santa Fé [15] (*Arcé*), Lion Hill (*M'Leannan* [10 20 21]).

Saltator magnoides inhabits much the same range of country as *S. atriceps*, being found together with it in the hot low-lying forest-region from Southern Mexico to Panama, where it is perhaps even more common than the allied species. In Guatemala, however, it is restricted to the forests of Vera Paz, and does not appear to occur on the Pacific side of the Cordillera, where *S. atriceps* is common. It keeps also to the east side of the isthmus until we reach Costa Rica, where it is to be met with on both sides of the Cordillera, and thence spreads onwards to the isthmus of Panama. Panama specimens were separated by Mr. Lawrence under the name of *S. intermedius*, as they seemed to him to be intermediate between *S. magnoides* and *S. magnns* of South America. In his paper on Arcé's collections [15], Salvin was at some pains to show that the characters relied on by Mr. Lawrence are not of much moment, and we have no reason now to go back from this verdict.

Another synonym of this *Saltator* is *S. gigantodes*, Cab.[19] Mr. Sclater examined the

type of this bird, and gave it as his opinion that it was only an example of *S. magnoides*.

The South-American species most nearly allied to the present bird is undoubtedly *S. magnus*, which enjoys a very wide range in South America, and comes close to our border in the State of Antioquia in Colombia. Salmon found the nest and eggs of *S. magnus*; the former he describes as composed of small sticks and fern-stalks, and placed in low underwood; the eggs are pale greenish blue, with a zone of black spots and hair-lines round the larger end.

S. magnus differs from *S. magnoides* in having black rictal lines on each side of the gular spot, which are not carried round it as a necklace as in *S. magnoides*. It is, too, a smaller bird, and is more rufescent and not so pure a grey beneath.

3. **Saltator grandis.**

Tanagra grandis, Licht. Preis-Verz. mex. Vög. p. 2 (*cf.* J. f. Orn. 1863, p. 57[1]).

Saltator grandis, Scl. P. Z. S. 1856, p. 72[2]; 1857, p. 205[3]; 1859, pp. 364[4], 377[5]; 1864, p. 174[6]; Scl. & Salv. Ibis, 1859, p. 14[7]; P. Z. S. 1870, p. 836[8]; Moore, P. Z. S. 1859, p. 58[9]; Cab. J. f. Orn. 1860, p. 416[10]; 1861, p. 1[11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549[12]; Lawr. Ann. Lyc. N. Y. ix. pp. 102[13], 200[14]; Bull. U. S. Nat. Mus. no. 4, p. 19[15]; v. Frantzius, J. f. Orn. 1869, p. 300[16]; Salv. Cat. Strickl. Coll. p. 200[17]; Boucard, P. Z. S. 1883, p. 443[18].

Saltator icterophrys, Lafr. Rev. Zool. 1844, p. 41[19]; Bp. Consp. i. p. 490[20].

Saltator rufiventris, Vig. in Beechey's Voy. p. 19[21] (nec. d'Orb.).

Saltator vigorsii, Gray, Gen. B. ii. p. 363[22]; Cab. Mus. Hein. i. p. 143[23].

Supra nigrescenti-cinereus, capitis lateribus obscurioribus, superciliis distinctis albis, gutture medio albo, nigro utrinque marginato; subtus pallidior, ventre imo et crisso rufescentibus; rostro nigro, mandibula cornea, pedibus plumbeis. Long. tota 8·5, alæ 4·2, caudæ 4·2, rostri a rictu 0·95, tarsi 1·1. (Descr. exempl. ex Tonola, Mexico. Mus. nostr.)

Av. juv. supra olivaceo indutus, superciliis et gula flavo tinctis, subtus rufescentior. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

Hab. Mexico[1 21 22 23], Tepitongo (*Galeotti*[17]), Villa Maria[19], valley of Mexico (*White*[6]), hot and temperate regions of Vera Cruz (*Sumichrast*[12]), Tierra Caliente of the Atlantic side (*le Strange*), Cordova (*Sallé*[3]), Jalapa[2] (*Deppe*, *de Oca*[4]), Playa Vicente (*Boucard*[5]), Santa Efigenia[15], Tonila (*Sumichrast*), Merida in Yucatan (*Schott*[14], *Gaumer*[18]); Guatemala (*Skinner*[7], *Constancia*[17]), Escuintla, Retalhuleu, Savana Grande, Dueñas[7] (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely*[8]), Omoa (*Leyland*[9]); Costa Rica (*v. Frantzius*[10 16], *Hoffmann*[10]), San José (*v. Frantzius*[13]), Cartago (*Cooper*[13], *Arcé*, *Rogers*), Tempate (*Arcé*).

There can be little doubt that the birds described above as the young of this species really are so, for, though we have no specimens of *S. grandis* in transition plumage, we have one of the closely allied *S. plumbeiceps* in this stage, and Mr. Lawrence has described others. This form of *S. grandis* was called *S. icterophrys* by Lafresnaye, owing to

its yellowish eyebrows; it also has the back and underparts tinged with olive-yellow. We find birds in this dress with normally-clad adult birds throughout the range of the species.

As will be seen above, *Saltator grandis* has a very extensive range in our region, from Southern Mexico to Costa Rica; but in Western Mexico *S. plumbeiceps* entirely supplants it. Its range in altitude is decidedly higher than that of either *S. atriceps* or *S. magnoides*; Sumichrast gives its limits as nearly 5000 feet in the State of Vera Cruz; and this agrees with our observations, as we found it abundant at Dueñas in Guatemala, which lies at nearly this altitude. From this height it extends to the sea-level at Tehuantepec in Northern Yucatan and elsewhere.

In Guatemala its range is somewhat peculiar, as it hangs to the side sloping to the Pacific Ocean rather than to Vera Paz; but, on the other hand, it is common in Northern Yucatan, and occurs also at San Pedro and Omoa, near the eastern sea-board of Honduras [8 9].

Its habits are very similar to those of its congeners, *S. atriceps* and *S. magnoides*, associating in small flocks in the lower brushwood bordering the forest.

Concerning *Saltator icteropygius* (DuBus, Esq. Orn. t. 13; Scl. P. Z. S. 1856, p. 70), described as a distinct Mexican species, some difference of opinion has prevailed, Dr. Hartlaub agreeing with its describer as to its distinctness, whilst Lafresnaye and Bonaparte declared it to be a specimen of *Saltator grandis* supplied with a tail of a *Ptilogonys cinereus*. We have not seen the type; but, from the figure, we have no hesitation in coming to the conclusion that the bird was made up in the way suggested by Lafresnaye!

4. Saltator plumbeiceps.

Saltator plumbeiceps, Lawr. Ann. Lyc. N. Y. viii. p. 477 [1]; Mem. Bost. Soc. N. H. ii. p. 274 [2].

S. grandi similis, sed omnino pallidior, supra pallidius griseus, subtus sordide albidus, capitis lateribus multo pallidioribus et litura utrinque rictali nigra multo magis distincta.

Av. juv. olivascens, superciliis flavidis, litura rictali fusca distinguendus. (Descr. feminæ et av. juv. ex Mazatlan, Mexico. Mus. nostr.)

Hab. Mexico, Mazatlan (*Xantus* [1], *Grayson* [2], *Forrer*), Presidio near Mazatlan (*Forrer*), Tepic (*Grayson* [2]), plains of Colima (*Xantus* [2]), Putla (*Rébouch*).

Mr. Lawrence first published a description of this species under a MS. name given to specimens obtained near Mazatlan by Xantus in 1863 [1]. It was subsequently found by Grayson in the same neighbourhood [2], by Xantus himself further south in the plains of Colima [2], by Rébouch near Putla, and lastly in some numbers by Mr. Alphonse Forrer again near Mazatlan.

Grayson says [2] that it inhabits the forests and breeds in the spring months, during which time it is in fine song. He adds that it does not migrate, and is a common species in the vicinity of Mazatlan, Tepic, and San Blas. The nest he describes as

Pl. 34

slightly made of small dry twigs and lined with fibrous roots; the eggs, from three to five in number, are of a pale blue colour, with delicate black hieroglyphic marks on the large end.

The young bird described by Mr. Lawrence[2], Grayson thought was a distinct species; but one of his birds being in transition plumage proves that this cannot be the case. We have also a young bird in a similar state from M. Rébouch.

Saltator plumbeiceps is closely allied to *S. grandis*, and entirely takes its place in Western Mexico, beyond the limits of which district it has not yet been detected. Nor have the two birds been found together.

5. Saltator albicollis.

Saltator albicollis, Vieill. N. Dict. d'Hist. N. xiv. p. 107[1]; Bp. Consp. i. p. 489[2]; Scl. P. Z. S. 1856, p. 75[3]; Tacz. P. Z. S. 1874, p. 517[4]; 1879, p. 229[5]; 1880, p. 198[6]; Scl. & Salv. P. Z. S. 1879, p. 505, t. 42. f. 9[7]; Salv. & Godm. Ibis, 1880, p. 122[8]; Salv. P. Z. S. 1883, p. 421[9].

Saltator maculipectus, Lafr. Rev. Zool. 1847, p. 73[10]; Bp. Consp. i. p. 489[11]; Scl. P. Z. S. 1856, p. 76[12]; Scl. & Salv. P. Z. S. 1868, p. 167[13].

Saltator striatipectus, Lafr. Rev. Zool. 1847, p. 73[14]; Bp. Consp. i. p. 489[15]; Scl. P. Z. S. 1856, p. 76[16]; 1866, p. 97[17]; Lawr. Ann. Lyc. N. Y. vii. p. 331[18]; viii. p. 176[19].

Saltator isthmicus, Scl. P. Z. S. 1861, p. 130[20]; Scl. & Salv. P. Z. S. 1864, p. 351[21]; Salv. P. Z. S. 1867, p. 141[22]; 1870, p. 189[23].

Supra olivaceus, uropygio et cauda cinereis, hujus rectricum apicibus albidis; subtus sordide albus, pectore olivaceo suffuso, gula et ventre medio albis, corpore reliquo subtus fusco flammulato; rostro nigro, pedibus corylinis. Long. tota 7·2, alæ 3·5, caudæ 3·3, rostri a rictu 0·8, tarsi 0·9. (Descr. maris ex Panama. Mus. nostr.)

♀ mari similis.

Hab. Panama[20], Volcan de Chiriqui, Chitra[23], Santa Fé[22] (*Arcé*), David (*Hicks*[19]), Lion Hill (*M'Leannan*[18 21]), near the city of Panama (*A. H. Markham*[9]).—South America, from Colombia[7 8 10 14] to Ecuador and Peru[4 5 6 17], Venezuela[13], Trinidad[3], and Guiana[2]?

We have no specimens from Guiana, whence the type of this species is stated to have come[1]. Mr. Sclater, who examined this type in the Paris Museum before writing his Synopsis of Tanagers in 1856[3], says that it seemed to him to be a skin of a young bird. He further states his suspicion that it came from Trinidad and not from Cayenne, though the bird may well occur in both countries. This bird must bear Vieillot's title *Saltator albicollis*. With the acquisition of a gradually increasing series of specimens of a *Saltator* of this form, including examples from many points of the northern portion of South America, we have gradually come to the conclusion that but one species ranges from Trinidad on the east to the Isthmus of Panama, and thence southwards to the Gulf of Guayaquil. It thus follows that the names *S. maculipectus*, *S. striatipectus*, and *S. isthmicus* are all but synonyms of *S. albicollis*, as they were

proposed for birds found within the area indicated above. We also believe that the island birds *S. martinicensis* and *S. guadalupensis* will probably be found inseparable from *S. albicollis* when a good series of specimens are compared. Mr. Sclater has already expressed his inability to distinguish between *S. martinicensis* and *S. guadalupensis* [3].

Though we place all the continental birds under the name *S. albicollis*, there is a certain amount of variation observable in different individuals. The colour of the bill has been used as a differential character, but this most certainly is only an individual one. The amount of striation on the chest is another variable character; but this, too, is not localized, though Colombian specimens have perhaps less than those from Panama.

Salmon obtained the eggs of this species in the Colombian State of Antioquia; these he describes as pale greenish blue, with a zone of fine black lines round the larger end [7]. This description agrees well with that given by Grayson of the eggs of *Saltator plumbeiceps*.

PITYLUS.

Pitylus, Cuv. Règne An. i. p. 413 (1829); Sclater, P. Z. S. 1856, p. 64.

Pitylus is another Neotropical genus, containing nine species, three of which are found within our limits, two being peculiar, and one (*P. grossus*) having an extensive range over the northern parts of South America.

Of the peculiar species, *P. celæno* of Mexico has no near ally, but perhaps comes near to *P. erythromilas* of Guiana. *P. poliogaster* represents the Guianan and Brazilian *P. viridis* and *P. brasiliensis*, but has perhaps a nearer ally in *P. humeralis* of Colombia and Ecuador.

In *Pitylus* we have the extreme Fringilline development of the bill in the Tanagridæ, as in size it almost equals that of some members of *Coccothraustes*. It is short, high, with a strongly arched culmen; the commissure is prominently sinuated in the middle, the subterminal notch being also well developed. The wings are short; the tail moderate, rounded in *P. grossus*, nearly square in *P. poliogaster*; the tarsi are short, the birds being strictly arboreal.

1. Pitylus grossus.

Loxia grossa, Linn. Syst. Nat. i. p. 307 [1].

Pitylus grossus, Cab. in Schomb. Reise n. Guiana, iii. p. 677 [2]; Scl. P. Z. S. 1856, p. 64 [3]; 1857, p. 264 [4]; 1860, p. 293 [5]; Cassin, Pr. Ac. Phil. 1860, p. 140 [6]; 1865, p. 170 [7]; Lawr. Ann. Lyc. N. Y. vii. p. 298 [8]; ix. p. 102 [9]; Scl. & Salv. P. Z. S. 1864, p. 352 [10]; 1873, p. 185 [11]; 1879, p. 505 [12]; Salv. P. Z. S. 1867, p. 141 [13]; Ibis, 1872, p. 317 [14]; Pelz. Orn. Bras. p. 220 [15]; Tacz. P. Z. S. 1874, p. 518 [16].

Plumbeus, capitis lateribus et gutture (gula alba excepta) nigris, subalaribus albis; rostro læte rubro-aurantiaco, pedibus plumbeis. Long. tota 7·6, alæ 3·65, caudæ 3·5, rostri a rictu 0·8, tarsi 0·9.

♀ mari similis, sed fuscescentior, capitis lateribus et gutture fuscis nec nigris distinguenda. (Descr. maris et feminæ ex Panama. Mus. nostr.)

Hab. Nicaragua, Chontales (*Belt* [14]); Costa Rica, Pacuar [7 9], Valza (*Carmiol*); Panama, Santa Fé (*Arcé* [13]), Lion Hill (*M'Leannan* [8 10]), Falls of the Rio Truando (*Wood* [6]). —Colombia [3 12]; Ecuador [5]; Peru [11 16]; Amazons [4 15]; Guiana [2].

This Linnæan species has, we believe, remained up to the present time unencumbered with a synonym, a peculiarity not shared by many birds. It is, as might be supposed from this circumstance, a well-marked bird, with but one near ally in the Brazilian *Pitylus fuliginosus*, with which, however, it cannot well be confounded.

It is also a bird singularly free from variation, and specimens from Guiana hardly differ in being somewhat brighter than our series from Central America. In the latter country it is not very common, though it spreads northwards as far as Nicaragua [14]. Mr. Wood, who observed it only once near the falls of the Truando, says [6] it has a loud musical note, not unlike the Cardinal bird of the United States (*Cardinalis virginianus*).

Its range in South America, besides including Guiana, extends throughout the Amazons valley from Peru, where Natterer found it, to the Rio Javarri and Pebas, where it came under the observation of Mr. Bates and Hauxwell. Further westwards Whitely obtained it in the valley of the Cosnipata in Peru [11], and Jelski at Montirico [16]. It also occurs in Western Ecuador [5] and in Colombia, both near Bogota [3] and in the State of Antioquia [12].

2. **Pitylus celæno.** (Tab. XXIV.)

Fringilla celæno, Licht. Preis-Verz. mex. Vög. p. 2 [1] (*cf.* J. f. Orn. 1863, p. 57).
Pitylus celæno, Scl. P. Z. S. 1856, p. 65 [2]; 1864, p. 174 [3].
Pitylus atro-purpuratus, Lafr. Rev. Zool. 1838, p. 224 [4].
Periporphyrus atro-purpuratus, Bp. Consp. i. p. 503 [5].
Pitylus atro-olivaceus, Lafr. Rev. Zool. 1838, p. 224 [6].
Caryothraustes atro-olivaceus, Bp. Consp. i. p. 503 [7].
Pyranga mexicana, Less. Rev. Zool. 1839, p. 41 [8].

Niger, torque cervicali postica cum lateribus pectoris et ventre læte sanguineo-rubris; subalaribus rosaceis; rostro plumbeo, pedibus nigris. Long. tota 8·4, alæ 4·1, caudæ 3·5, rostri a rictu 0·85, tarsi 0·9. (Descr. maris ex Mexico. Mus. nostr.)

♀ "olivacea, subtus flava, pileo, colli lateribus juguloque nigris" (Bp. *ut suprà* [2]).

Hab. Mexico [1 4 6 8] (*le Strange*), Papantla (*Deppe* [2]), valley of Mexico (*White* [3]).

This fine species of *Pitylus* must have a very restricted range in Mexico, as its name is not included in any of the lists of birds obtained by MM. Sallé, Boucard, Botteri, de Oca, or Sumichrast. Mr. White secured a single example [3], which is now in our collection (and which is now figured), and Mr. le Strange had another in the large

collection he brought from Mexico. Deppe seems to have been the only collector who secured a series of specimens, as the species is included in the list of his duplicates; and owing to this circumstance it received a name and a brief description from Lichtenstein [1]. Deppe's specimens were from Papantla. We have never seen the female of this species; but Lafresnaye describes that sex under a distinct title in the same paper in which he redescribed the male. Mr. Sclater reduced these names to their proper position when he wrote his Synopsis of the Tanagers in 1856 [2].

Pitylus celæno has no near allies, but it is grouped by Mr. Sclater with the Guianan *P. erythromelas*, with Bonaparte's generic name for it (*Periporphyrus*) as a sectional heading.

3. Pitylus poliogaster.

Pitylus poliogaster, DuBus, Bull. Ac. Brux. xiv. pt. 2, p. 105 [1]; Esq. Orn. t. 22 [2]; Scl. P. Z. S. 1856, pp. 66 [3], 302 [4]; 1859, p. 376 [5]; Scl. & Salv. Ibis, 1860, p. 32 [6]; P. Z. S. 1864, p. 352 [7]; 1870, p. 836 [8]; Ex. Orn. p. 168 [9]; Salv. P. Z. S. 1867, p. 141 [10]; Ibis, 1872, p. 317 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 549 [12]; Lawr. Ann. Lyc. N. Y. ix. p. 102 [13].

Pitylus flavocinereus, Cassin, Pr. Ac. Phil. 1848, p. 47 [14].

Caryothraustes episcopus, Bp. Consp. i. p. 504 (ex Licht. MS.) [15].

Læte olivaceus, pileo antico et pectore toto flavescentioribus, loris regione oculari et gula nigris; dorso postico et abdomine cinereis, ventre medio albicantiore; rostro et pedibus plumbeis. Long. tota 6·8, alæ 3·8, caudæ 3, rostri a rictu 0·8, tarsi 0·85. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ mari omnino similis.

Hab. Mexico [14], Cosamaloapam [15] (*Deppe* [3]), Cordova (*Sallé* [4]), Choapam, Teotalcingo, Playa Vicente (*Boucard* [5]); hot region of Vera Cruz (*Sumichrast* [12]); British Honduras, Belize (*Blancaneaux*); Guatemala [16], Choctum, Yaxcabnal, Kamkal (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [8]); Nicaragua, Chontales (*Belt* [11]); Costa Rica, Angostura (*Carmiol* [13]), Tucurriqui (*Arcé*); Panama, Santa Fé, Santiago de Veraguas (*Arcé* [10]), Lion Hill (*M'Leannan* [7]).

Pitylus poliogaster comes into Mr. Sclater's section *Caryothraustes*, together with *P. viridis* and *P. humeralis*; but it differs from these allies in having the anterior half of the body yellow and the posterior half grey.

It was first described by DuBus from Guatemalan specimens, and in Guatemala we found it common, but only in the forests of Northern Vera Paz. The elevation at which it may most frequently be seen is about 1200 to 2000 feet above the sea; but we met with it as high as 4000 feet in the neighbourhood of Coban. It is a forest bird, and feeds on fruits.

In Mexico Sumichrast places it amongst the birds of the hot country; but he, too, traced it as high as to between 3000 and 4000 feet of elevation.

As will be seen above, its further extension southwards reaches to the line of the Panama railway, and it seems to be found in suitable localities in all the intervening country.

Fam. FRINGILLIDÆ*.

PHEUCTICUS.

Pheucticus, Reichenbach, Av. Syst. t. lxxviii. (1850).

We are now acquainted with six species of this purely Neotropical genus, two of which come within our limits, neither of them passing beyond. The range of *P. chrysopeplus* is restricted to Western Mexico, and that of *P. tibialis* to Costa Rica and the adjoining part of the State of Panama. The four southern species are all Andean, *P. chrysogaster* being also found in Venezuela.

The species of *Pheucticus* may readily be distinguished, so far as the males are concerned, by the following characters†:—

A. Capite summo flavo aut flavido.
  a. Cauda albo terminata:
    minor . . . . . 1. *chrysogaster*.
    major, rostro validissimo . . . . . 2. *chrysopeplus*.
  b. Cauda omnino nigra . . . . . 3. *tibialis*.
B. Capite summo nigro dorso concolore.
  c. Uropygio nigro . . . . . 4. *aureiventris*.
  d. Uropygio flavo nigro variegato:
    gutture nigro . . . . . 5. *uropygialis*.
    gutture flavo . . . . . 6. *hemichrysus*.

In *Pheucticus* the beak is more fully developed than in any other American genus of Fringillidæ, except perhaps *Coccothraustes* and some species of *Oryzoborus*. The culmen is high and the round nostrils exposed; the commissure of the maxilla is abruptly angular, and the mandible very strongly developed; the rictal bristles are short, but stout. The wings are moderately long, the second, third, and fourth primaries being the longest, the first and fifth nearly equalling them; the tail is long, and but slightly rounded; the tarsi and toes are short and the claws rather feeble, indicating a strictly arboreal habit; the general colours of the plumage throughout the genus are black and yellow, and there is considerable diversity between the sexes, at least in some members.

* Any thing like a satisfactory classification of the Fringillidæ remains yet to be accomplished; and as the family is represented over nearly the whole world, it is evident that no arrangement that did not embrace all the genera should be attempted. Prof. Baird, in 'The History of North-American Birds,' expressed his inability to define satisfactorily the limits of the subfamilies of the North-American Fringillidæ owing to the difficulty of drawing the lines of difference with precision, but he adopts five subfamilies, and proceeds to arrange the genera under these heads. A somewhat similar plan had been employed by Mr. Sclater in his 'Catalogue of American Birds;' and by Salvin in his 'Catalogue of the Strickland Collection;' but in view of the trivial and variable character of the definitions of the subfamilies, we here adopt the plan of the 'Nomenclator Avium Neotropicalium,' and simply place the genera seriatim in what appears to be their most natural order without attempting to define any larger divisions.

† *Guiraca magnirostris*, Bp. P. Z. S. 1837, p. 120=*Pheucticus bonapartii*, Salvad. Att. R. Acc. Sc. Tor. iv. p. 178, is unknown to us.

1. Pheucticus chrysopeplus.

Coccothraustes chrysopeplus, Vigors, P. Z. S. 1832, p. 4[1].

Coccoborus chrysopeplus, Bp. Consp. Av. i. p. 504[2].

Pheucticus chrysopeplus, Finsch, Abh. nat. Ver. z. Bremen, 1870, p. 339[3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 274[4].

Luteus, dorso medio (luteo variegato), alis et cauda nigris, remigibus apicem versus extus albo limbatis, speculo alari et tectricibus alarum ad apices albis, rectricibus tribus utrinque externis in pogonio interno plaga magna alba notatis, subalaribus flavis; rostro et pedibus nigricanti plumbeis. Long. tota 8·3, alæ 4·6, caudæ 3·8, tarsi 1·1, rostri a rictu 1.

♀ supra flavido-fusca fusco variegata, alis et cauda fuscis, illis albo bifasciatis hac unicolori immaculata; subtus sordide lutea, rostri mandibula pallida. (Descr. maris et feminæ ex Mazatlan, Mexico. Mus. nostr.)

Hab. Mexico[2] (*Cuming*[1]), Mazatlan (*Grayson*[3 4], *Bischoff*[4], *Forrer*), Rio de la Ameria (*Xantus*[4]).

The original description of this species was by Vigors, whose types were obtained by the late Hugh Cuming on the coast of Mexico. For nearly forty years we had no further tidings of the species, and during this time Vigors's name was placed as a synonym of *P. chrysogaster*, a South-American bird undoubtedly allied to *P. chrysopeplus*. It is to Grayson that we owe the rediscovery of this species, and its redescription to Dr. Finsch, into whose hands a few of Grayson's specimens came, and who described them fully and carefully in 1873[3].

The limited range of *P. chrysopeplus*, confined as it is to the districts near Mazatlan in Western Mexico, and the fact that its nearest and not remote ally must be sought in Venezuela and Ecuador, is a remarkable feature in the geographical distribution of the birds of this part of the world. The further circumstance that *P. tibialis* of Costa Rica is more remotely allied to it than is *P. chrysogaster* enhances the difficulty of explaining the facts of its distribution, and at present we have no theory to advance in explanation of them.

Grayson says[4] that *P. chrysopeplus* is rather common in the vicinity of Mazatlan, where its cheerful and voluminous song is often heard in the woods. He adds that it does not migrate.

P. chrysopeplus may at once be distinguished from the only other Central-American *Pheucticus*, *P. tibialis*, by the male having white tips to the tail, yellow thighs, &c.

2. Pheucticus tibialis.

Pheucticus tibialis, "Baird," Lawr. Ann. Lyc. N. Y. viii. p. 478[1]; ix. p. 102[2]; Salvadori, Atti R. Acc. Sc. Tor. iv. p. 177, t. 5[3]; Frantz. J. f. Orn. 1869, p. 300[4]; Salv. P. Z. S. 1870, p. 189[5].

Sordide flavus, abdomine toto et crisso dilutioribus; loris, interscapuliis, alis, cauda et tibiis nigris, speculo alari albo; rostro et pedibus plumbeo-nigris. Long. tota 8, alæ 4·3, caudæ 3·1, rostri a rictu 0·8, tarsi 0·95.

♀ mari similis, capite et cervice postico paullo obscurioribus. (Descr. maris et feminæ ex Calovevora, Panama. Mus. nostr.)

Hab. Costa Rica[3], Cervantes (*J. Cooper*[1 2], *Carmiol*[2]), Tucurriqui, Rancho Redondo

(*Carmiol* [2]), San José [2], Turrialba [4] (*v. Frantzius*); Panama, Chitra, Boquete de Chitra, Calovevora, Calobre (*Arcé* [5]).

This very distinct species is now a well-known bird, being not uncommon in Costa Rica and the adjoining parts of the State of Panama. It was first described by Prof. Baird in a paper published by Mr. Lawrence in 1867 [1], and soon afterwards Count Salvadori gave a figure of it on a plate accompanying a short paper on Costa-Rica birds [3].

Dr. von Frantzius tells us [4] that *P. tibialis* is found on the east side of Costa Rica, where it frequents the maize-fields. It is a good songster, its notes resembling those of the European Bullfinch (*Pyrrhula vulgaris*).

Prof. Baird compares it with *P. chrysogaster*, but it has no near relationship with that species, nor, indeed, with any other member of the genus. Its black tail without terminal white spots (except in immature individuals), its black wings with only a white speculum, and its black tibiæ are all characteristic features shared with no other species. The sexes are alike in colour, as apparently is the case in *P. aureiventris* and its immediate allies. In *P. chrysogaster* and *P. chrysopeplus* the sexes differ considerably in the colour of their plumage.

HEDYMELES.

Hedymeles, Cabanis, Mus. Hein. i. p. 152 (1851); Baird, Brew., & Ridgway, N. Am. B. ii. p. 69.
Zamelodia, Coues, Bull. Nutt. Orn. Club, v. p. 9 (vice *Hedymeles*); Key N. Am. B. ed. 2, p. 388.
Habia, Stejneger, Auk, i. p. 366 (ex Reichenbach).

Two species constitute this genus, both of them inhabitants of North America, and one of them, *H. ludovicianus*, a migratory bird reaching Ecuador in winter; the other, *H. melanocephalus*, a more sedentary species, whose range does not pass the southern frontier of Mexico.

The females of these two species are very similar in their streaked plumage, light superciliary stripe, and median stripe on the crown of the head. The males have their wings and tails similarly marked with white, and both have the under wing-coverts brightly coloured, one with rose and the other with yellow. In other respects their coloration differs widely.

The bill is similar in both birds, being large and swollen, the mandible rather deeper than the maxilla, which has the commissure angulated. The nostrils are open, and the prenasal feathers short and thickly set, the rictal bristles being short and strong. The tarsi are short and stout, as are also the feet and claws. The wings are rather long, the second, third, and fourth primaries nearly equal and longest, the first being longer than the fifth. The tail is moderately long and slightly forked.

1. Hedymeles ludovicianus.

Loxia ludoviciana, Linn. Syst. Nat. i. p. 306 [1].
Guiraca ludoviciana, Sw. Phil. Mag. n. ser. i. p. 438 [2]; Bp. P. Z. S. 1837, p. 116 [3]; Consp. Av. i.

p. 501 [4]; Gosse, B. Jam. p. 259 [5]; Dresser, Ibis, 1865, p. 491 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [7].

Hedymeles ludovicianus, Cab. Mus. Hein. i. p. 152 [8]; J. f. Orn. 1861, p. 7 [9]; Scl. P. Z. S. 1856, p. 301 [10]; 1859, p. 365 [11]; 1860, p. 293 [12]; 1864, p. 174 [13]; Moore, P. Z. S. 1859, p. 58 [14]; Scl. & Salv. Ibis, 1859, p. 17 [15]; P. Z. S. 1870, p. 836 [16]; 1879, p. 506 [17]; Lawr. N. Lyc. N. Y. vii. p. 297 [18]; ix. pp. 102 [19], 200 [20]; Bull. U. S. Nat. Mus. No. 4, p. 19 [21]; Mem. Bost. Soc. N. H. ii. p. 275 [22]; Frantz. J. f. Orn. 1869, p. 300 [23]; Salv. P. Z. S. 1870, p. 189 [24]; Cat. Strickl. Col. p. 218 [25]; Wyatt, Ibis, 1871, p. 328 [26]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 70 [27]; Salv. & Godm. Ibis, 1880, p. 122 [28]; Boucard, P. Z. S. 1883, p. 444 [29].

Zamelodia ludoviciana, Coues, Key N. Am. B. ed. 2, p. 389 [30].

Goniaphea ludoviciana, Gundl. Orn. Cub. p. 95 [31].

Fringilla rhodocampter, Licht. Preis-Verz. mex. Vög. p. 1, cf. J. f. Orn. 1863, p. 56 [32].

Nigerrimus; uropygio, abdomine, speculo alari et fasciis alarum duabus albis; pectore medio et subalaribus læte rosaceis, caudæ rectricibus tribus utrinque lateralibus albo maculatis; rostro pallido, pedibus plumbeis. Long. tota 7·0, alæ 3·8, caudæ 3·9, rostri a rictu 0·6, tarsi 0·9. (Descr. maris ex Yucatan. Mus. nostr.)

♀ fusca, supra fusco-nigro striata, vertice medio et superciliis albidis; subtus alba fusco (præter abdomen medium) guttulata; alis albo bifasciatis, subalaribus ochraceis; rostro pallide corylino, pedibus corylinis. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America, Eastern United States to plains of the Missouri River [27], Texas [6]. —Mexico [8 31] (*Bullock* [2]), plains of Colima (*Xantus* [22]), valley of Mexico (*White* [13]), Orizaba and Tierra Caliente (*Le Strange*), Cordova (*Sallé* [10]), Jalapa (*de Oca* [11], *Deppe*), State of Vera Cruz in winter (*Sumichrast* [7]), Tonala, Santa Efigenia [21] (*Sumichrast*), Merida in Yucatan (*Schott* [20], *Gaumer* [29]); Guatemala [25] (*Velasquez de Leon* [3], *Constancia* [25]), Vera Paz (*Skinner* [15]), Retalhuleu, Dueñas, Volcan de Fuego, San Gerónimo, Tactic, Coban, Choctum (*O. S. & F. D. G.*); Honduras, Omoa (*Leyland* [14]), San Pedro (*G. M. Whitely* [16]); Costa Rica (*V. Frantzius* [9 23]), San José [19], Angostura (*Carmiol*), La Palma (*Zeledon* [19]), Cache (*Rogers*); Panama, Volcan de Chiriqui (*Arcé* [24]), line of Railway (*M'Leannan* [18]).—Colombia [17 26 28]; Ecuador [12]; Antilles, Cuba [31], Jamaica [5].

Males of this species in full plumage are seldom met with anywhere within our limits; indeed the only one in this stage that we possess is that described above from Yucatan. The usual dress is one in which the rosy colour of the under wing-coverts, as well as a more or less pronounced patch of that colour on the breast, shows the sex of the bird. The rest of the plumage is usually a transitional one, in which the striped character of the young is mingled with the darker tints of the adult. Many of the birds in this transitional plumage are probably in winter dress, and the full plumage is only assumed on the approach of the breeding-season.

Hedymeles ludovicianus is a common winter visitant to Mexico and Central America, being abundant at that season in Guatemala from the sea-level to a height of about 7000 feet. Being a bird of the Eastern States, it does not touch Western Mexico in its winter migration until the Isthmus of Tehuantepec is reached, but thence southwards it

is found along the shores of the Pacific to Ecuador. The habits of this species during its summer residence in the United States, as well as its nest and eggs, are fully set forth in 'The History of North-American Birds' [27].

2. Hedymeles melanocephalus.

Guiraca melanocephala, Sw. Phil. Mag. n. ser. i. p. 438 [1]; Bp. P. Z. S. 1837, p. 111 [2]; Consp. Av. i. p. 502 [3]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [4]; Dugès, La Nat. i. p. 139 [5].

Hedymeles melanocephalus, Cab. Mus. Hein. i. p. 153 [6]; Scl. P. Z. S. 1857, p. 213 [7]; 1858, p. 303 [8]; 1859, p. 365 [9]; 1864, p. 174 [10]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 73 [11]; Lawr. Mem. Bost. Soc. N. H. ii. p. 275 [12]; Salv. Cat. Strickl. Coll. p. 218 [13].

Hedymeles melanocephalus, var. *capitalis*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 70 [14].

Fringilla xanthomaschalis, Wagl. Isis, 1831, p. 525 [15].

Fringilla epopœa, Licht. Preis-Verz. mex. Vög. p. 2, cf. J. f. Orn. 1863, p. 56 [16].

Pitylus guttatus, Less. Rev. Zool. 1839, p. 102 [17].

Supra niger, dorso medio castaneo variegato, torque cervicali, uropygio et corpore subtus castaneis, speculo alari, tectricum et secundariorum apicibus et caudæ rectricibus utrinque duabus albo maculatis; mento nigro, abdomine medio flavo, subalaribus flavis; rostri maxilla corylina, mandibula pallida, pedibus plumbescentibus. Long. tota 7·8, alæ 3·8, caudæ 2·8, rostri a rictu 0·6, tarsi 0·9.

♀ supra fusca fusco-albido striata, capite summo nigricante medialiter et superciliis albidis; subtus albida ochraceo tincta et undique fusco guttulata; alis albo bifasciatis, subalaribus flavis. (Descr. maris et feminæ ex Jalapa, Mexico. Mus. nostr.)

Hab. North America, high central plains from the Yellowstone to the Pacific [11].—Mexico [2 3 6 13 15 16 17], Temiscaltepec (*Bullock* [1]), Guanajuato (*Dugès* [5]), Mazatlan (*Grayson* [12], *Forrer*), plains of Colima (*Xantus* [12]), Guadalajara (*Grayson*), valley of Mexico (*White* [10]), Alpine region and plateau of Vera Cruz (*Sumichrast* [4]), Jalapa (*de Oca* [9], *Deppe*), Orizaba (*Botteri* [7]), Tierra Fria, Velasco (*Le Strange*), State of Oaxaca (*Boucard* [8], *Fenochio*).

Hedymeles melanocephalus was discovered by Bullock at Temiscaltepec in Mexico, and described by Swainson in 1827. Since then it has been observed in many parts of Mexico, in the higher regions of the United States, and westwards to the Pacific Ocean. Birds from the last-named region and those from Western Mexico differ slightly from the typical form by having the hind edge of the black crown ill defined, as well as traces of an occipital stripe and chestnut superciliaries. These birds have been designated *H. m. capitalis* by Mr. Ridgway, but we do not feel very sure as to their true position; and it may possibly be that they are winter-plumaged birds, varying at that season just as the males of *H. ludovicianus*. Our series does not enable us to speak with certainty on the point, our only specimens in this state of plumage being from Mazatlan, and these were shot in the month of December. Grayson's specimens were shot at Mazatlan in February, and near Guadalajara in May [12]. Sumichrast says that *H. melanocephalus* is common in the Alpine region and plateau of the State of Vera Cruz as high as 8200 feet above the sea, and as low as 4000 feet, but never lower.

In the United States it is a well-known bird from Arizona northwards to Washington

Territory. Its habits are described as resembling those of its congener, *H. ludovicianus*; it is also said to have a song, of which many writers speak in high praise, of similar quality. The eggs of this species are of a bluish-green ground, blotched and splashed with markings of a rusty brown, more numerous at the larger end. The nest consists of a few sticks and weeds loosely put together and lined with grass and roots [11].

The most southern record we have of *H. melanocephalus* is Oaxaca [8]. Our specimen from there is a male of the typical form.

Of the synonyms of this species *Fringilla xanthomaschalis*, Wagler [15], is simply a substitute for Swainson's older title. *F. epopœa*, Lichtenstein [16], was proposed apparently in ignorance of the bird being already described. *Pitylus guttatus*, Lesson [17], is in the same category and is based on a male in Abeille's collection.

CARDINALIS.

Cardinalis, Bonaparte, Saggio di una Distr. Met. An. Vert. p. 53 (1831); Baird, Brew., & Ridgw. N. Am. B. ii. p. 98.

The bright-red plumage of the males of the species of this genus renders it easily recognized, in addition to which the form of the wings, tail, &c. all points to its complete isolation, except from the next genus, which has peculiarities of its own. *Cardinalis* contains two well-defined species, *C. virginianus* and *C. phœniceus*, the latter coming from Venezuela, and not found within our borders. *C. virginianus*, again, has been subdivided into several races, two of which we, somewhat reluctantly, here admit under separate headings, at least until their status is more definitely fixed. Of these races one seems to be the true *C. virginianus* of the Eastern States, visiting Eastern Mexico in its winter migration. In Western Mexico we find two forms, one apparently the same as that found in Lower California and other parts of the western territory. This has been called by Prof. Baird *C. igneus*. Whether the birds found at Mazatlan belong to this race is not absolutely certain; and there seems to be a still further divergence in the bird of the Tres Marias Islands, especially in the development of its bill. At Acapulco and its immediate neighbourhood another race is found, distinguishable with much more certainty by its pure red back and long stiff crest. This was long ago described by Lesson as *C. carneus*.

C. phœniceus of Venezuela, though similarly coloured to *C. virginianus*, can at once be distinguished by its bill being dark slate-colour instead of red, and by the restriction of the black of the throat. This bird was described as coming from countries south of the Bay of Honduras, but it has no place in our fauna.

The bill in *Cardinalis virginianus* is large, the culmen but slightly curved, and the commissure sinuated. The mandible is about the same height as the maxilla, but broader. The tarsi are moderately long, longer than the middle toe, which with the rest of the toes is short; the claws are slender and curved. The wing is rounded, the third, fourth, fifth, and sixth quills being the longest, the first being about equal to the

secondaries. The tail is very long and rounded. The general plumage of the male is scarlet, and there is a very distinct occipital crest.

1. Cardinalis virginianus.

Loxia cardinalis, Linn. Syst. Nat. i. p. 300 [1].

Fringilla cardinalis, Licht. Preis-Verz. mex. Vög. p. 1, cf. J. f. Orn. 1863, p. 56 [2].

Cardinalis virginianus, Bp. P. Z. S. 1837, p. 111 [3]; Baird, Mex. Bound. Surv. ii., Birds, p. 17 [4]; Scl. P. Z. S. 1856, p. 302 [5]; 1859, pp. 365 [6], 378 [7]; Dresser, Ibis, 1865, p. 491 [8]; Salv. Ibis, 1866, p. 193 [9]; Dugès, La Nat. i. p. 139 [10]; Lawr. Ann. Lyc. N. Y. ix. p. 201 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [12]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 100 [13]; Sennett, Bull. U. S. Geol. Surv. iv. p. 21 [14]; v. p. 394 [15]; Boucard, P. Z. S. 1883, p. 444 [16].

Cardinalis virginianus, var. *coccineus,* Baird, Brew., & Ridgw. N. Am. B. ii. p. 99 [17].

Coccineus, dorso multo obscuriore et plumis plerumque cinereo-fusco terminatis; alis fuscis extus rubro indutis; cauda fusco-rubra, crista occipitali elongata coccinea, fronte angusta, loris, regione suboculari et gula nigris; rostro rubro, pedibus carneis. Long. tota 7·7, alæ 3·6, caudæ 4, rostri a rictu 0·75, tarsi 1·0.

♀ mari aliquot similis, sed colore coccineo alis, caudæ et cristæ restricto, dorso sordide olivaceo; subtus sordide ochracea, pectore obscuriore. (Descr. maris et feminæ ex Jalapa, Mexico. Mus. nostr.)

Hab. North America [1], southern portions of United States, Rio Grande Valley [13], Texas [8 14 15], Bermuda [13].—Mexico [2 3], Nuevo Leon (*Couch* [4]), Guanajuato (*Dugès*), State of Vera Cruz in winter (*Sumichrast* [12]), Cordova (*Sallé* [5]), Jalapa (*de Oca* [6]), Playa Vicente (*Boucard* [7]), Merida in Yucatan [17] (*Schott* [11]), Chable (*Gaumer* [16]); British Honduras, Belize (*O. S.*[9], *Blancaneaux*), Corosal (*Roe*).

This is the Cardinal Grosbeak, described by Mr. Ridgway as *C. virginianus*, var. *coccineus* [13], but we wholly fail to distinguish between specimens from Jalapa and others from Washington; and as Sumichrast speaks of *C. virginianus* as a winter visitor to the State of Vera Cruz [12], the probability is that the birds of Eastern Mexico and the Eastern States are of one species. In Yucatan, however, and in British Honduras, both of which localities are included in the range of *C. v.* var. *coccineus*, we notice that the grey edging of the dorsal feathers becomes evanescent, leaving this part of the plumage of a redder tint than is usual in *C. virginianus*. The difference is, however, of the slightest, not very constant, and unaccompanied by other characters.

Cardinalis virginianus is a very familiar bird in the Eastern States, and has been known for at least two centuries, being mentioned by nearly every writer on North-American birds. It is a favourite cage-bird, and distinguished for its song, the female as well as the male having this accomplishment. Its habits, nest, and eggs are fully described by Brewer in the 'History of North-American Birds' [13] *, and a very copious list of references is to be found in Dr. Coues's 'Birds of the North-West.'

* For the statement, "A single specimen of this bird was obtained near Dueñas, Guatemala, by Mr. Salvin," we can find no authority. Salvin says [9] that he saw Cardinal Grosbeaks at Belize, but did not obtain specimens. This, so far as we know, is its extreme southern range. It was certainly never seen by us elsewhere.

2. Cardinalis igneus.

Cardinalis igneus, Baird, Pr. Ac. Phil. 1859, p. 305 [1].

Cardinalis virginianus, var. *igneus*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 99 [2]; Lawr. Mem. Bost. Soc. N. H. ii. p. 275 [3]; Belding, Pr. U. S. Nat. Mus. vi. p. 343 [4].

Cardinalis virginianus, Finsch, Abh. nat. Ver. z. Bremen, 1870, p. 339 [5]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 281 [6].

C. virginiano persimilis, fronte in mare minime nigra, colore nigro gulæ et faciei in femina omnino absente (?) forsan distinguendus.

Hab. North America, Cape San Lucas [1], Arizona [1 2].—Mexico, Guaymas (*Belding* [4]), Mazatlan [3 5], Tres Marias Islands [3 6] (*Grayson*, *Forrer*).

We have considerable doubts if this bird can be satisfactorily distinguished from *C. virginianus* in all cases; the bill in typical birds is hardly appreciably larger, though the black forehead seems certainly narrower. In the birds from the Tres Marias Islands, however, we find the bill much more tumid, the back still greyer, and the top of the head and crest less conspicuously red. The specimens in our collection, however, exhibit one character which, if constant, would determine the validity of *C. igneus*. The females, of which we have examples from Mazatlan and the Tres Marias Islands, have no black on the throat, which is of a dirty whitish colour, instead of being black. Whether this is really a constant character of *C. igneus*, and found in the birds of Lower California as well as of the places mentioned, we have no present means of ascertaining. The descriptions of the female of *C. igneus* speak of it as only distinguishable from that of *C. virginianus* by its more swollen bill, and by the more restricted dusky colour around the base of the bill. From this it would appear that our female birds from Mazatlan and the Tres Marias Islands do not conform to those of *C. igneus*; and were we sure that the former were in their normal plumage we should be disposed to separate the bird of those districts from *C. igneus*. But the shades of distinction between the different forms of *C. virginianus* are so close that we hesitate to subdivide them further than has already been done without the evidence of more materials upon which to form a sounder judgment.

Grayson says that this *Cardinalis* is remarkably abundant upon the Marias Islands, where it is a constant resident, but that it is not numerous on the mainland [6]. Mr. Forrer procured us specimens from both places.

3. Cardinalis carneus.

Coccothraustes (*Cardinalis*) *carneus*, Less. Rev. Zool. 1842, p. 210 [1]; Bp. Consp. Av. i. p. 501 [2].

Cardinalis virginianus, var. *carneus*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 99 [3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 275 [4]; Bull. U. S. Nat. Mus. No. 4, p. 20 [5].

Cardinalis virginianus, Salv. P. Z. S. 1883, p. 421 [6].

C. virginiano quoque persimilis, sed crista coccinea valde elongata, dorso pure coccineo haud cinereo intermixto distinguendus.

♀ nobis ignota.

Hab. Mexico, Acapulco [3] (*Lesson* [1 2], *Markham* [6]), Sierra Madre (*Xantus* [4]), Huamelula (*Sumichrast* [5]), Colima [3].

The long, comparatively stiff, feathers composing the crest of this bird, together with the red back without any admixture of grey, and the lighter red rump, are characters by which it may be recognized, both from *C. cardinalis* and *C. igneus*. The forehead, too, is very narrowly bordered with black.

The name *C. carneus* of Lesson has been attributed to this Western-Mexican bird, but Lesson's description is anything but satisfactory, being based upon a female or young male individual. The localities given, "Acapulco" and "Realejo," are in all probability only correct as to the former place, "Realejo" being far outside the range of any *Cardinalis*, so far as our recent knowledge extends. That the Acapulco bird is the same as that described in the 'History of North-American Birds' from the Sierra Madre is proved by specimens before us. We think, therefore, that Lesson's title, *C. carneus*, may safely be assigned to it.

The range of *C. carneus* is restricted to a limited portion of Western Mexico, for at Mazatlan and its neighbourhood another form, *C. igneus*, prevails, and its southern range does not appear to extend beyond the Isthmus of Tehuantepec, as we have no trace of it in Guatemala, nor, indeed, of any *Cardinalis*, except on the confines of British Honduras and Yucatan.

PYRRHULOXIA.

Pyrrhuloxia, Bonaparte, Consp. Av. i. p. 500 (a subgenus) (1850); Coues, Key N. Am. B. ed. 2, p. 393.

Prince Bonaparte proposed this name for this peculiar bird considering it a subgenus of *Cardinalis*, next to which it undoubtedly comes. The only member of the genus, *P. sinuata*, occurs all along on both sides of our northern frontier, from the Rio Grande valley to the head of the Gulf of California, and in the peninsula of Lower California, its southern limits reaching Mazatlan and Zacatecas.

The great peculiarity of *Pyrrhuloxia*, as distinguished from *Cardinalis*, lies in the structure of the bill, which has the maxilla much rounded, both as to the culmen and in cross section; the commissure is much angulated about the middle of its length. The mandible is much wider and deeper than the maxilla; the commissure is also angulated, the distal portion being nearly straight and meeting the ascending gonys at nearly a right angle. The tarsi are longer than the middle toe, which, with the rest, are short, and the claws feeble. The wings are short and rounded, the third, fourth, and fifth quills being the longest, the first about equalling the secondaries. The tail is very long and slightly rounded. There is a long occipital crest; and the general colour of the plumage is grey, with red patches.

1. Pyrrhuloxia sinuata.

Cardinalis sinuatus, Bp. P. Z. S. 1837, p. 111 [1]; Consp. Av. i. p. 500 [2].

Pyrrhuloxia sinuata, Baird, Mex. Bound. Surv. ii., Birds, p. 17 [3]; Dresser, Ibis, 1865, p. 491 [4]; Dugès, La Nat. i. p. 139 [5]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 95 [6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 275 [7]; Sennett, Bull. U. S. Geol. Surv. iv. p. 21 [8]; v. p. 393 [9]; Belding, Pr. U. S. Nat. Mus. vi. p. 343 [10]; Coues, Key N. Am. B. p. 393 [11].

Cinerea, subtus dilutior, alis et cauda fusco-nigris, illis extus coccineo marginatis, crista occipitali elongata fusca ad basin coccinea; loris, gutture. abdomine medio et subalaribus rosaceo-coccineis, rostro pallide corneo, pedibus carneis. Long. tota 8·5, alæ 3·8, caudæ 4·1, rostri a rictu 0·5, tarsi 1·0. (Descr. maris ex El Paso, Smiths. Inst. 6368. Mus. nostr.)

♀ mari similis, alis extus et subalaribus tantum coccineis. (Descr. feminæ ex Eagle Pass, Texas. Mus. nostr.)

Hab. North America, valley of Rio Grande [3 6 11], Texas [4 8 9], Lower California [6 11].—Mexico, western parts [1], Nuevo Leon (*Couch* [3]), Guaymas (*Belding* [10]), Mazatlan (*Grayson* [7]), Zacatecas [2], Guanajuato (*Dugès* [5]).

This curious bird was first described by Bonaparte from a specimen from Zacatecas in Mexico; and though it is now known chiefly from the Rio Grande valley and across the continent to the Gulf of California, and also in Lower California, it has also been obtained at Mazatlan and elsewhere; so that its claims as a Mexican bird cannot be questioned. Mr. Dresser, who met with it during his travels in Texas, looked upon it as a straggler from Mexico, as he found it abundant at Eagle Pass on the frontier, but a few miles north it failed to appear. He speaks of it as a shy bird, and when followed it perches on the top of some high bush, erecting its long crest; at other times it would take to the thick underwood, where it was impossible to shoot it [4]. Mr. Sennett makes similar observations on its habits [8]. The last-named traveller discovered its nest and eggs at Lomita in Texas. This nest was placed about five feet from the ground, and was compactly built of dried inner bark, grasses, and pliant twigs, with a few rootlets for lining. The eggs somewhat resemble in shape those of *Cardinalis virginianus*, but are more round, and are irregularly covered with spots of various shades of brown and lavender, which are massed together at the larger end, sometimes forming a band, but more frequently covering the entire end [9]. The ground-colour is dull chalky white [6].

Grayson's specimens were shot at Mazatlan in February and April, but he says the bird was not common [7].

GUIRACA.

Guiraca, Swainson, Zool. Journ. iii. p. 350 (1827); Coues, Key N. Am. B. ed. 2, p. 390.
Cyanocompsa, Cabanis, J. f. Orn. 1861, p. 4.

The type of this genus is the well-known *Loxia cærulea* of Linnæus, and with it have been associated several other species from Mexico, Central and South America, all closely related to one another, but somewhat aberrant from the type, and separated by

Prof. Cabanis under the name of *Cyanocompsa*. The members of this latter section are all stationary species, whereas *G. cærulea* is strictly migratory. There is, too, a striking uniformity in the colour of the plumage of the former, that of the latter differing both in its tint and in the silkiness of the texture of the feathers, and other points mentioned below.

Besides *G. cærulea*, which passes the winter season within our limits, there are two well-defined species of *Guiraca*, *G. parellina* and *G. concreta*, the latter being subdivisible into races, the validity of which as species is perhaps open to question, though we have treated them separately. One of these races (*G. concreta*) extends its range from Southern Mexico to Chiriqui; the other is found at Panama, and thence southwards to Colombia and Western Ecuador.

The bill of *G. cærulea* has the culmen nearly straight, the commissure strongly angulated, the mandible being deep and the rictal bristles well developed. The wings are long and pointed, the second, third, and fourth quills being nearly equal and longest, the first and fifth being rather shorter. The tail moderate and slightly rounded. The tarsus is less than the middle toe and claw.

In *G. concreta* the wing is shorter and more rounded; the second, third, and fourth are still the longest, but the fifth and sixth are hardly shorter, the first being shorter than the secondaries. The bill is stouter in proportion; and the tarsus equals the middle toe and claw.

a. *Guiraca*.

1. Guiraca cærulea.

Loxia cærulea, Linn. Syst. Nat. i. p. 306 [1]; Wagl. Isis, 1831, p. 525 [2].

Guiraca cærulea, Sw. Phil. Mag. n. ser. i. p. 438 [3]; Bp. Consp. Av. p. 111 [4]; Baird, Mex. Bound. Surv. ii., Birds, p. 16 [5]; Scl. P. Z. S. 1859, pp. 365 [6], 378 [7]; 1864, p. 174 [8]; Ibis, 1873, p. 373 [9]; Salv. Ibis, 1861, p. 352 [10]; Dresser, Ibis, 1865, p. 491 [11]; Lawr. Ann. Lyc. N. Y. ix. pp. 102 [12], 200 [13]; Bull. U.S. Nat. Mus. No. 4, p. 20 [14]; Mem. Bost. Soc. N. H. ii. p. 275 [15]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [16]; Dugès, La Nat. i. p. 139 [17]; Frantz. J. f. Orn. 1869, p. 301 [18]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 77 [19]; Gundl. Av. Cub. p. 95 [20]; Boucard, P. Z. S. 1883, p. 444 [21]; Nutt. & Ridgw. Proc. U.S. Nat. Mus. vi. p. 392 [22]; Coues, Key N. Am. B. ed. 2, p. 390 [23].

Coccoborus cæruleus, Cab. Mus. Hein. i. p. 152 [24]; Finsch, Abh. nat. Ver. z. Bremen, 1870, p. 339 [25].

Goniaphea cærulea, Scl. P. Z. S. 1856, p. 301 [26]; Sennett, Bull. U.S. Geol. Surv. iv. p. 19 [27]; v. p. 392 [28].

Saturate cærulea, interscapulio saturatiore; loris, alis et cauda nigris, tectricibus alarum mediis et majoribus castaneo terminatis fascias duas formantibus, secundariis quoque extus castaneo limbatis; rostro corneo, pedibus corylinis. Long. tota 6·0, alæ 3·4, caudæ 2·5, rostri a rictu 0·7, tarsi 0·8. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ fusco-brunnea, subtus dilutior, alis et cauda fusco-nigris illis brunneo bifasciatis. (Descr. feminæ ex Presidio, Mexico. Mus. nostr.)

Obs. Mas juv. colore cæruleo undique brunneo intermixto.

Hab. NORTH AMERICA, Southern United States from Atlantic to Pacific Oceans [19 23], Texas [11 27 28].—MEXICO [2 4 24], Nuevo Leon (*Couch* [5]), Frontera (*Wright* [5]), Zoquito (*Clark* [5]), Los Nogales (*Kennerly* [5]), Tableland (*Bullock* [3]), Valley of Mexico (*White* [8]), Tierra Fria, Velasco (*le Strange*), Mazatlan (*Grayson* [15 25]), Presidio (*Forrer*), Tepic (*Grayson* [15]), Plains of Colima (*Xantus* [15]), Guanajuato (*Dugès*), Jalapa (*de Oca* [6]), Cordova (*Sallé* [26]), Vera Cruz in winter (*Sumichrast* [16]), Oaxaca (*Boucard* [7], *Fenochio*), Chihuitan, Huitzo (*Sumichrast* [14]), Merida in Yucatan (*Schott* [13]), Izamal in Yucatan [21], Cozumel I. (*Gaumer*); GUATEMALA, Cuyotenango, Chol, Salama [10], Choctum [10], Yzabal (*O. S. & F. D. G.*); NICARAGUA, Chinandega (*Hicks*), Chontales (*Belt* [9]), Omotepe I. (*Nutting* [22]); COSTA RICA (*v. Frantzius* [18]), Angostura (*Carmiol* [12]).—CUBA [20].

This species visits Mexico and Central America in the winter months, spreading at that season over the whole country as far south as Costa Rica. In the island of Cuba, alone of the Antilles, it is rarely found, and only in the month of April, when it arrives with other migratory birds on their passage northwards [20]. On the neighbouring mainland in Northern Yucatan it is common from December to May [21]. It is also found in the latter month in the island of Cozumel. In Guatemala *G. cærulea* is pretty generally distributed throughout Vera Paz, especially in the hotter districts north of Coban [10]. We also saw it in the high ridge of mountains between Rabinal and Chol, in the valley of the Motagua, and in the coast-region of the Pacific near Cuyotenango. During the season of its stay in the south it is a dull, uninteresting species, uttering no song. It is usually met with in small flocks, which frequent trees of moderate height. Grayson, who found *G. cærulea* at Mazatlan from October to April, also procured a specimen at Tepic in June. From this he inferred that it migrated to the Mexican uplands to breed [15]. Of this we have no confirmation; and Sumichrast simply includes it as one of the migratory Finches of the State of Vera Cruz [16].

In the United States *G. cærulea* is a well-known bird; and Brewer gives a long account of it in the 'History of the Birds of North America' [19], from which it would appear that it seldom occurs so far north as Maine, but that in more southern States it spreads from the Atlantic to the Pacific, and that it breeds wherever found. He describes its nest, and speaks of its eggs as of a uniform light-blue colour, which readily fades on exposure to light.

b. *Cyanocompsa*.

2. Guiraca concreta.

Cyanoloxia concreta, DuBus, Bull. Ac. Brux. xxii. p. 150 [1].

Goniaphea concreta, Scl. P. Z. S. 1856, p. 302 [2]; 1857, p. 228 [3].

Guiraca concreta, Scl. P. Z. S. 1859, p. 378 [4]; Scl. & Salv. Ibis, 1860, p. 33 [5]; P. Z. S. 1870, p. 836 [6]; Salv. P. Z. S. 1867, p. 141 [7]; 1870, p. 189 [8]; Ibis, 1872, p. 317 [9]; Sumichrast,

Pl. 43

Mem. Bost. Soc. N. H. i. p. 551 [10]; Lawr. Ann. Lyc. N. Y. ix. p. 102 [11]; Frantz. J. f. Orn. 1869, p. 301 [12]; Nutting & Ridgw. Proc. U. S. Nat. Mus. vi. p. 400 [13].

Nigra cyaneo vix tincta; fronte, genis et tectricibus alarum minoribus cyanescentioribus, rostro et pedibus nigris. Long. tota 6·0, alæ 3·2, caudæ 2·7, rostri a rictu 0·8, tarsi 0·9. (Descr. maris ex Orizaba, Mexico. Mus. nostr.)

♀ omnino brunnea, subtus paullo dilutior, alis et cauda saturatioribus. (Descr. feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico [1], Orizaba (*Salle* [2]), Santecomapam [3], Playa Vicente [4] (*Boucard*), Peñula (*Sumichrast* [10]); British Honduras (*Blancaneaux*); Guatemala, Yzabal [5], Choctum (*O. S.*); Honduras, San Pedro (*G. M. Whitely* [6]); Nicaragua, Chontales (*Janson* [9]), Los Sabalos (*Nutting* [13]); Costa Rica (*v. Frantzius* [12]), Turrialba, Angostura (*Carmiol* [11]); Panama, Santa Fe [7], Calovevora [8], Boquete de Chitra [8], Bugaba [8] (*Arcé*).

Guiraca concreta does not appear to be found northwards of the hot forests of the State of Vera Cruz in Mexico, the limit of its range in altitude being, according to Sumichrast, about 2500 feet [10]. In Guatemala we found it always in the heavily-forested districts at the sea-level near Yzabal [5] and at Choctum, which is about 1200 feet above the sea. In Nicaragua Mr. Nutting says it is abundant near Los Sabalos, especially in a plantain-grove, and also in a patch of high marsh-grass [13].

The typical Mexican form of this species is easily recognized from the Panama bird, *G. cyanoides*, by its much darker tint, in which there is but a slight blue shade, and the forehead and cheeks are scarcely bluer than the rest of the plumage. Guatemalan specimens, and all from various parts southwards as far as the province of Veraguas, are somewhat intermediate in character; the blue tint, so distinct in *G. cyanoides*, is decidedly apparent, and the forehead and cheeks are obviously blue, though not so much so as in the southern form. When we reach Panama itself, whence the type of *G. cyanoides* was obtained, the difference in the amount of blue of the plumage is tolerably obvious; moreover, the distinction seems sufficiently marked and abrupt to justify our separating Central-American and Panama specimens. But we should not be surprised to find either that the former can be distinguished from the blacker Mexican bird or that all these races merge into one species. For the present we place the Central-American and Mexican birds under the name *G. concreta*, and keep *C. cyanoides* of Panama distinct; and this has been the usual practice up to now.

3. † Guiraca cyanoides.

Coccoborus cyanoides, Lafr. Rev. Zool. 1847, p. 74 [1].

Cyanoloxia cyanoides, Bp. Consp. Av. i. p. 502 [2]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [3].

Guiraca cyanoides, Scl. & Salv. P. Z. S. 1864, p. 352 [4]; 1879, p. 506 [5]; Berlepsch & Tacz. P. Z. S. 1883, p. 549 [6].

G. concretæ similis, sed omnino cyanescentior; fronte, genis et tectricibus læte cyaneis. (Desc. maris ex Lion Hill, Panama. Mus. nostr.)

Hab. Panama [1 2], Lion Hill (*M'Leannan* [3 4]).—Colombia [5]; Ecuador [6].

This bird, as already stated, differs from *G. concreta* in the colour of its plumage, which is of a clearer blue shade, the forehead and cheeks being of a still paler colour. It was originally described by Lafresnaye from Panama specimens, and it has since been traced southwards through Colombia [5] to Western Ecuador [6].

4. Guiraca parellina.

Fringilla parellina, Licht. Mus. Berol.[1]
Cyanoloxia parellina, Bp. Comp. Av. i. p. 502 [2].
Goniaphea parellina, Scl. P. Z. S. 1856, p. 302 [3]; 1857, p. 228 [4]; Baird, Mex. Bound. Surv. ii. Birds, p. 17 [5].
Cyanospiza parellina, Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [6].
Guiraca parellina, Scl. P. Z. S. 1859, pp. 365 [7], 378 [8]; Lawr. Bull. U. S. Nat. Mus. No. 4, p. 20 [9]; Mem. Bost. Soc. N. H. ii. p. 276 [10]; Boucard, P. Z. S. 1883, p. 444 [11].

G. concretæ et *G. cyanoidi* affinis, sed multo minor; fronte, genis, uropygio et tectricibus alarum minoribus læte cæruleis. Long. tota 4·8, alæ 2·7, caudæ 2·2, tarsi 0·7. (Descr. maris ex Jalapa, Mexico. Mus. nostr.)

♀ fusca, subtus dilutior, gula et abdomine medio fere albicantibus, alis et cauda fusco-nigris. (Descr. feminæ ex Mazatlan, Mexico. Mus. nostr.)

Hab. Mexico [2 4], Sierra Madre, Nuevo Leon (*Couch* [5]), Presidio, near Mazatlan (*Forrer*), Manzanilla Bay (*Xantus* [10]), State of Vera Cruz (*Sumichrast* [6]), Alvarado (*Deppe* [1 2]), Cordova (*Sallé* [3]), Jalapa (*de Oca* [7]), Totontepec [8], San Andres Tuxtla [4] (*Boucard*), Tehuantepec City, Huallago (*Sumichrast* [9]), Merida in Yucatan (*Gaumer* [11]).

This is a miniature form of the South-American *G. cyanea*, and more closely related to it than to *G. concreta*, which, like *G. parellina*, is a Mexican bird. The first specimens of this species which were sent to Europe were probably those obtained by Deppe at Alvarado, in Mexico, and which remained under a MS. name of Lichtenstein's until Bonaparte described them in 1850. It has since been found nearly everywhere in the hotter parts of Mexico, from the Northern States of Nuevo Leon and Sinaloa to Tehuantepec and Yucatan. Hardly anything has been recorded of its habits; and Sumichrast merely remarks that the limit of its upward range does not exceed about 2600 feet [6].

ORYZOBORUS.

Oryzoborus, Cabanis, Mus. Hein. i. p. 151 (1851).

In this genus are included several species allied to *Spermophila*, but with much stouter bills. They are spread over tropical America from Southern Mexico to South Brazil, but are absent from the Antilles. Two species occur within our limits. Some of the forms are not very definite, and we have little doubt that of the species now recognized several will have to be withdrawn. The characters upon which their distinction is based are decidedly variable, especially as regards the size of the bill.

This is especially shown in *O. torridus*, in which there is great diversity, but which has not on that account been divided. On the other hand, the size of the bill has in a great measure been used to separate *O. maximiliani* from *O. crassirostris* (=*O. melas*, Scl. & Salv.). *O. occidentalis* can more readily be distinguished by its black under wing-coverts, and from it *O. nuttingi* is hardly separable. *O. funereus* is a diminutive form of *O. crassirostris*, but easily recognized.

The bill in *Oryzoborus* (*O. crassirostris*) is very stout, the culmen arched and reaching back on to the forehead; the tomia of the maxilla is abruptly bent, and there is a corresponding angle in that of the mandible. The wings are short and rounded, the third primary being slightly longer than the second and fourth, the first and fifth being equal and a little shorter than the second and fourth; the tail is moderately long and rounded; the tarsi stout, of moderate length, and longer than the middle toe. The general colour of the male is black, of the female umber-brown; but the male of *O. torridus* is deep chestnut beneath.

1. **Oryzoborus nuttingi.**

Oryzoborus nuttingi, Ridgw. Proc. U. S. Nat. Mus. vi. p. 401 [1].

Niger; alis intus ad basin griseo-albidis, subalaribus nigris; rostro robusto, albido; pedibus plumbeo-nigris.
Long. tota 5·5, alæ 2·7, caudæ 2·7, tarsi 0·7.
♀. Supra saturate umbrino-brunnea; subtus cinnamomeo-brunnea, subalaribus fulvescentibus; rostro fusco-nigricante; pedibus fuscis. (Descr. exempl. typ. ex Nicaragua. Mus. Smiths. Nos. 91,196 ♂, 91,198 ♀.)

Hab. NICARAGUA, Los Sabalos (*Nutting* [1]).

Mr. Ridgway described this species from two males and two females obtained by Mr. Nutting in Nicaragua, and they are the only examples of a black *Oryzoborus* of the larger *O. crassirostris* type that we have seen from our country. Except that the bill is decidedly large, the male only differs from that sex of *O. occidentalis* in the almost total absence of the white wing-speculum, a little white being still visible on raising the coverts. In *O. occidentalis* from Western Ecuador the speculum is quite small, and in an example from Colombia it is still smaller; hence we doubt if *O. nuttingi* will prove a definite species when a larger series of specimens are examined. All these birds have the wing-coverts nearly black, and they thus differ from *O. crassirostris* and its allies.

Mr. Nutting speaks of this bird as rather common in a patch of marshy grass at the hacienda of Los Sabalos, where it was apparently gregarious *.

* On reexamining Salmon's specimens called *O. occidentalis* (Scl. & Salv. P. Z. S. 1879, p. 506) we find that the under wing-coverts are white, and that the birds must be referred to *O. crassirostris*. To the same form must be ascribed a "Bogota" specimen in our collection, though another from the same source belongs to *O. occidentalis*, the two birds being probably shot on different sides of the mountain-range.

The eggs of *O. crassirostris* are greyish brown, indistinctly blotched with lilac-grey and strongly marked with dark red-brown marks.

2. Oryzoborus funereus.

Oryzoborus funereus, Scl. P. Z. S. 1859, p. 378[1]; Scl. & Salv. Ibis, 1860, p. 398[2]; P. Z. S. 1879, p. 506[3]; Salv. P. Z. S. 1867, p. 141[4]; 1870, p. 189[5].

Oryzoborus funereus?, Ridgw. & Nutting, Proc. U.S. Nat. Mus. vi. p. 400[6].

Oryzoborus æthiops, Scl. P. Z. S. 1860, pp. 88[7], 276[8]; Lawr. Ann. Lyc. N. Y. vii. p. 333[9].

Oryzoborus salvini, Ridgw. Proc. U. S. Nat. Mus. vi. p. 400[10].

Coracino-niger unicolor; subalaribus, campterio et speculo alari (alula spuria fere obtecta) albis; rostro nigro; pedibus fusco-nigris. Long. tota 4·75, alæ 2·2, caudæ 2·2, tarsi 0·6. (Descr. maris typ. ex Suchapam, Mexico. Mus. P. L. Sclater.)

♀. Fusco-brunnea, subtus magis ferruginea subalaribus albis. (Descr. feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico, Suchapam (*Boucard*[1]); Guatemala, Choctum (*O. S. & F. D. G.*); Nicaragua Los Sabalos (*Nutting*[6 10]); Panama, Santa Fé[4], Calovevora[5] (*Arcé*), Lion Hill (*M'Leannan*[9]).—Colombia[3 7]; Ecuador[7 8].

This species was first described by Mr. Sclater from a specimen obtained by M. Boucard at Suchapam in the Mexican State of Oaxaca[1], and it has since been traced to Guatemala and to the State of Panama, Colombia, and Western Ecuador, for birds from the latter country do not differ in any essential particular from the Mexican type. Two female or young birds obtained by Mr. Nutting in Nicaragua agree fairly with a female from Western Ecuador, one of the types of *O. æthiops*, but which has since been united to *O. funereus*[3]. The bill in these birds is larger than in any male of *O. funereus* in our possession; but, knowing how variable the bill is in *O. torridus*, we do not attach much importance to this difference. Mr. Ridgway thinks the Nicaragua birds hardly likely to belong to *O. æthiops*; but if, as we maintain, *O. æthiops* is the same as *O. funereus*, the probability of there being another species inserted in the middle of the range of that bird is very unlikely, and the fact can only be established after an examination of more specimens than are at present available.

Our Guatemala birds were all obtained in the low-lying forest-country north of Coban in Vera Paz, where, however, the bird was not common. Mr. Nutting shot his examples in a patch of plantains and in some high marsh-grass, their habits being similar to those of *Guiraca concreta*.

AMAUROSPIZA.

Amaurospiza, Cabanis, J. f. Orn. 1861, p. 3.

This peculiar form has a general resemblance to *Guiraca*, especially to the small *G. parellina*, but on closer examination the shape of the bill will show that there is no near relationship.

The type *A. concolor*, so far as we yet know, is restricted to Costa Rica and the State of Panama; but the bird is so rare that little can be said about it.

The bill is broad at the base, the culmen rather sharp and gradually curved from

the forehead. The tomia of the maxilla is gradually curved and not abruptly angular as in *Guiraca*, *Oryzoborus*, &c.; there is a distinct notch near the end; the nostrils are at the extremity of the nasal fossa, open, round, and surrounded above and behind by membrane; the rictal bristles are long and strong. The tarsi are slender, and so also are the toes and claws. The wings are short and rounded; the first primary =the secondaries, third and fourth longest, second=fifth. The tail is rather long and slightly rounded.

Prof. Cabanis considers the position of *Amaurospiza* to be near *Volatinia* and *Cyanospiza*.

1. Amaurospiza concolor.

Amaurospiza concolor, Cab. J. f. Orn. 1861, p. 3[1]; Frantz. J. f. Orn. 1869, p. 301[2]; Salv. Ibis, 1869, p. 313[3].

Cærulescenti-nigra unicolor; loris, alis caudaque nigris; rostro nigricante plumbeo, mandibula vix pallidiore. Long. tota 4·0, alæ 2·3, caudæ 2·1, tarsi 0·65 = dig. med. cum ungue. (Descr. exempl. (♂?) ex Paraiso Station, Panama. Mus. nostr.)

Hab. Costa Rica (*v. Frantzius* [1 2]); Panama, Chiriqui (*Arcé*), Paraiso Station (*Hughes* [3]).

We know very little of this peculiar bird, which was first described by Prof. Cabanis from a specimen obtained by v. Frantzius in Costa Rica, whence, however, we have never seen an example. The two in our possession are:—one from Chiriqui and the other from the Panama Railway.

SPERMOPHILA.

Spermophila, Swainson, Zool. Journ. iii. p. 348 (1827); Scl. Ibis, 1871, p. 1; Coues, Key N. Am. B. ed. 2, p. 392.

Twenty-four species were known to Mr. Sclater when compiling his Monograph of this genus, and to them he added a list of eleven others which have been described, but which he was not able to identify. If, therefore, we put the number of species in *Spermophila* at thirty, we shall more probably be under than over the mark. Of these, seven or eight occur within our region; three of these are from Mexico and Guatemala, the rest from Costa Rica and Panama. Four species are peculiar to our region, and three just enter it in the State of Panama and have a wide southern range.

The bill in *Spermophila* (*S. moreleti*) is short and stout, though less so than in *Oryzoborus*; the culmen is rounded, and follows the same curve as the top of the head; the nostrils are exposed, and at the distal end of the nasal fossa; the tomia of the maxilla is abruptly bent towards the commissure, the outer portion slightly curved towards the tip. The legs are feeble, and the toes short. The wings are much rounded, the second primary slightly shorter than the third, fourth, and fifth, which are nearly equal. The tail is rather long, and slightly rounded at the end.

The prevailing colours of *Spermophila* have been used to divide the genus into two sections, according to whether the species are chiefly rufous and black, or black and white; but this distinction is rather an artificial one, the last division being made to include grey species like *S. grisea*.

1. Spermophila minuta.

Loxia minuta, Linn. Syst. Nat. i. p. 307 [1].

Spermophila minuta, Lawr. Ann. Lyc. N. Y. vii. p. 333 [2]; Scl. & Salv. P. Z. S. 1864, p. 352 [3]; 1879, p. 506 [4]; Scl. Ibis, 1871, p. 3 [5]; Wyatt, Ibis, 1871, p. 328 [6]; v. Berlepsch, J. f. Orn. 1884, p. 294 [7].

Fuscescenti-cinerea, alis caudaque nigricantibus fusco limbatis; speculo alari et subalaribus albis; uropygio et corpore subtus testaceo-rubris. Long. tota 3·6, alæ 2·0, caudæ 1·6, tarsi 0·55.

♀. Olivaceo-fusca, alis caudaque obscurioribus; subtus pallide ochracea, ventre medio albicante. (Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Hab. Panama, Lion Hill (*M'Leannan* [2 3]).—Colombia [4 6]; Venezuela [5]; Guiana [5].

This is a species of the northern portion of South America, which just enters our fauna as far as the line of the Panama railway, beyond which we have not yet seen it. Here, however, it is by no means uncommon, M'Leannan having sent us several specimens, as well as others to Mr. Lawrence. We have examples from Roraima sent us by Mr. Whitely, and it has long been known as a bird of Cayenne, being figured by D'Aubenton as the "Bouvreuil à ventre roux de Cayenne" more than a hundred years ago. Mr. Sclater speaks of it, in his Monograph of *Spermophila* [5], as found in the islands of Tobago and Trinidad and on the mainland in Venezuela and Colombia. In the latter country it was met with by Mr. Wyatt both at Ocaña and Paturia in the valley of the Magdalena [6], and by Salmon in the adjoining valley of the Cauca at Retiro and Medellin [4]. The last-named collector also found its nest, which he describes as like that of *S. gutturalis*, and made of stems of coarse dry grass, rather loosely put together and placed in a low bush about four or five feet from the ground. The eggs are white, clearly marked with several shades of rich red-brown spots [4]. The food of *S. minuta* consists of seeds [4].

Allusion has been made to the intensity of the chestnut colouring of the underparts; and Graf von Berlepsch says that a Surinam bird in his collection, the true *S. minuta* of Linnæus, has this colour of a deeper tint than others from Venezuela and Bucaramanga in Colombia. We also notice that a bird from British Guiana is the darkest in our series. On the other hand, our male from Roraima is exactly of the tint of the Panama bird, and a male from Medellin is intermediate between the extremes.

2. Spermophila torqueola.

Spermophila torqueola, Bp. Consp. Av. i. p. 495 [1]; Scl. P. Z. S. 1858, p. 303 [2]; Ibis, 1871, p. 6 [3]; Dugès, La Nat. i. p. 139 [4]; Lawr. Mem. Bost. Soc. N. H. ii. p. 276 [5].

Fringilla ochropyga, Licht. Mus. Ber.[6].

Sporophila ochropyga, Cab. J. f. Orn. 1861, p. 5[7].

Spermophila atriceps, Lawr. Ann. Lyc. N. Y. viii. p. 479 (ex Baird MS.)[8].

Nigra, plaga utrinque cervicali, speculo alari et subalaribus albis; dorso postico et corpore toto subtus pallide rufis, torque pectorali nigra; rostro corneo, pedibus plumbeis. Long. tota 4·2, alæ 2·2, caudæ 2·0, tarsi 0·56. (Descr. maris ex Capulalpam, Mexico. Mus. nostr.)

♀. Fuscescenti-olivacea, alis caudaque obscurioribus, subtus valde dilutior-ochraceo perfusa. (Descr. feminæ ex Mazatlan, Mexico. Mus. nostr.)

Hab. Mexico [1], Mazatlan (*Grayson* [5 6 8], *Xantus*, *Forrer*), Tepic (*Grayson* [5]), Plains of Colima (*Xantus* [5]), Guanajuato (*Dugès* [4]), Cuernavaca (*Deppe*, *Mus. Berol.*[7]), Capulalpam, Oaxaca [2] (*Boucard*), Tehuantepec (*Grayson* [5]).

Bonaparte's short description of this species was based upon a specimen in the Berlin Museum, very probably that subsequently characterized by Prof. Cabanis as *Sporophila ochropyga*, a manuscript name of Lichtenstein's bestowed upon a specimen of Deppe's collecting at Cuernavaca on the western slope of the Mexican highlands.

The name *Spermophila atriceps* was given by Prof. Baird to specimens from Mazatlan and its vicinity. These were submitted to Mr. Sclater when he was compiling his monograph of this genus, and when we had also an opportunity of seeing them. We quite agree with Mr. Sclater that these specimens are immature examples of *S. torqueola.* We have similar ones now before us from the same district, sent us by M. Alphonse Forrer.

Grayson describes *S. torqueola* as a cheerful bird, with a sweet little song, which always renders it attractive. It is a constant resident in the State of Sinaloa, and is quite common at Tepic, occurring also at Tehuantepec. Individuals do not associate in flocks, but often in pairs, a few being sometimes seen in the same locality, where they frequent openings in which there is an abundance of low bushes, weeds, and grass, the small seeds furnishing their principal food.

In the months of April and May the males are in full song. The nest is placed in a low bush, and is compactly formed of fine roots with but little lining; the eggs, five in number, are nearly white or very pale blue. Two or more broods appear to be raised in the season, as young birds just able to fly are to be seen in October [5].

Spermophila torqueola appears to be, as Mr. Sclater says [3], a western species ranging through the western States of Mexico from Sinaloa to Tehuantepec. Inland it reaches Guanajuato, Cuernavaca, and Capulalpam, but has not yet been recorded from any of the eastern States.

3. **Spermophila moreleti.**

Spermophila moreleti, Bp. Consp. i. p. 497 [1]; Scl. P. Z. S. 1856, p. 302 [2]; 1859, pp. 365 [3], 378 [4]; Ibis, 1871, p. 10 [5]; Baird, Mex. Bound. Surv., Zool. ii. Birds, p. 17 [6]; Scl. & Salv. Ibis, 1859, p. 17 [7]; P. Z. S. 1870, p. 836 [8]; Salv. Ibis, 1859, p. 468 [9]; Cat. Strickl. Col. p. 222 [10]; Lawr. Ann. Lyc. N. Y. ix. p. 102 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [12]; Frantz.

J. f. Orn. 1869, p. 301[13]; Dugès, La Nat. i. p. 139[14]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 91[15]; Sennett, Bull. U. S. Geol. Surv. v. p. 393[16]; Boucard, P. Z. S. 1883, p. 444[17]; Coues, Key N. Am. B. ed. 2, p. 392[18].

Sporophila moreleti, Cab. Mus. Hein. i. p. 150[19]; J. f. Orn. 1861, p. 4[20].

Spermophila albogularis, Lawr. Ann. Lyc. N. Y. v. p. 124[21] (nec Spix).

Supra nigra; uropygio, speculo, alari et tectricum alarum marginibus albis, cervicis lateribus et corpore subtus albis, torque jugulari nigro; rostro nigro, pedibus fuscis. Long. tota 3·6, alæ 2·0, caudæ 1·6, tarsi 0·56. (Descr. maris ex San Pedro, Honduras. Mus. nostr.)

♀ olivacea, alis et cauda obscurioribus, tectricum alarum marginibus rufescentibus, rostro pallide fusco. (Descr. feminæ ex Belize, Brit. Honduras. Mus. nostr.)

Hab. NORTH AMERICA, Lower Rio Grande Valley, Texas[15 16 18].—MEXICO[19], San Diego in Nuevo Leon and Monterey (*Couch*[6]), Guanajuato (*Dugès*[14]), State of Vera Cruz (*Sumichrast*[12]), Orizaba (*Botteri*[2]), Jalapa (*de Oca*[3]), Playa Vicente (*Boucard*[4]), Merida in Yucatan (*Gaumer*[17]); BRITISH HONDURAS, Corosal (*Roe*), Belize (*O. S.*[7]); GUATEMALA[1] (*Constancia*[10]), Peten (*Morelet*), San Gerónimo, Totonicapam, Retalhuleu, Dueñas[9] (*O. S. & F. D. G.*); HONDURAS[2], San Pedro and Medina (*G. M. Whitely*[8]); COSTA RICA (*v. Frantzius*[13 20]), San José (*Hoffmann*[20], *Carmiol*[11]), Grecia (*Carmiol*[11]), Turrialba (*Arcé*), Irazu (*Rogers*).

This is the common *Spermophila* of Central America, being generally distributed from the Rio Grande valley to Costa Rica, and is specially abundant in the lowlands of British Honduras and Guatemala on both sides of the great mountain-range. Here it also occurs as high as Totonicapam in the Altos, and at Dueñas, where it breeds. In Mexico, too, it ascends the mountains from the hot and temperate regions; it is found also in the plateau, and Sumichrast only excepts it from the Alpine region with doubt[12].

S. moreleti, like the rest of its congeners, frequents open grassy ground where scattered bushes grow, and in tall reeds such as surround the edge of the lake at Dueñas. Its food consists chiefly of small seeds. Its nest is a neat structure of fine roots and fibre, woven together into a delicate network, and lined with horsehair. This is suspended to twigs. The eggs, three or four in number, are pale greenish white, thickly spotted and blotched with several shades of brown, especially at the larger end. The young are hatched in July.

This species was first described by Bonaparte from specimens in the Paris Museum, brought from the neighbourhood of Peten by the French traveller Morelet, who visited that district in 1847, and returned to France in the early part of the following year. In 1848 also specimens were sent by Constancia to Strickland[10].

The first notice of this bird in Texas is given by Mr. Lawrence, who identified it with *Loxia albigularis* of Spix, the specimen examined being evidently a young male. Young birds were also obtained by Mr. Sennett at Lomita in Texas, no adults having been seen nor any nests found.

4. Spermophila aurita.

Spermophila aurita, Bp. Consp. Av. i. p. 497[1]; Lawr. Ann. Lyc. N. Y. vii. p. 333[2]; Scl. Ibis, 1871, p. 14, t. 2. f. 1, 2[3].
Sporophila hoffmannii, Cab. J. f. Orn. 1861, p. 6[4].
Spermophila hoffmanni, Frantz. J. f. Orn. 1869, p. 301[5].
Spermophila lineata, Lawr. Ann. Lyc. N. Y. vii. p. 474[6].
Spermophila semicollaris, Lawr. Ann. Lyc. N. Y. viii. p. 10[7]; Scl. & Salv. P. Z. S. 1864, p. 352[8]; Salv. P. Z. S. 1867, p. 141[9], 1870, p. 189[10].
Spermophila hicksi, Lawr. Ann. Lyc. N. Y. viii. p. 171[11].
Spermophila fortipes, Lawr. Ann. Lyc. N. Y. viii. p. 172[12].
Spermophila collaris, Lawr. Ann. Lyc. N. Y. viii. p. 177[13].

Nigra; speculo alari, plaga utrinque cervicali (interdum semitorquem formante) et ventre medio albis; rostro nigro, pedibus fuscis. Long. tota 4·0, alæ 2·1, caudæ 1·9, tarsi 0·55.

♀ olivacea, alis caudaque obscurioribus, dorsi colore limbatis, subtus dilutior, flavicans, tectricibus subalaribus albis. (Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Hab. Costa Rica (*Hoffmann*[4], *v. Frantzius*[5]); Panama[12] (*Hicks*[11]), Volcan de Chiriqui, Bugaba[10] (*Arcé*), David (*Hicks*[13]), Mina de Chorcha, Chitra, Calovevora, Santa Fé[9] (*Arcé*), Lion Hill (*M'Leannan*[2 6 7 8]), Paraiso Station (*Hughes*), Obispo Station (*O. S.*), Panama city (*Hicks*[11]).

When Mr. Sclater compiled his Monograph of the genus *Spermophila* in 1871, he had the types of all the four species proposed, under the above names, by Mr. Lawrence before him. We also then had an opportunity of comparing them together, and with a considerable series of our own, and came to the same conclusion as Mr. Sclater, that they all, together with *S. hoffmanni*, belonged to one variable species, thus confirming the doubts expressed concerning them by Salvin the previous year[10]. The point of variation lies in the amount of white on the neck, which in some specimens is confined to a white patch on either side. In others these patches are connected by a band across the throat; in others the throat-patch alone appears, and in others, again, there is hardly any white at all on the neck. These forms seem connected together by insensible steps, and thus must be considered as varieties of one species.

The name *S. aurita* seems applicable to this bird, though the locality, Brazil, given by Bonaparte, its describer, is doubtless erroneous[1]. The bird, in fact, hardly passes the limits of the State of Panama, where it is everywhere abundant. Its presence in Costa Rica was proved by specimens sent to the Berlin Museum by Hoffmann[5]; but we have no examples from that country, nor had Mr. Lawrence at the time of compiling his list of Costa-Rica birds.

5. Spermophila gutturalis.

Fringilla gutturalis, Licht. Verz. Doubl. p. 26[1].
Sporophila gutturalis, Burm. Syst. Ueb. iii. p. 244[2].

Spermophila gutturalis, Scl. P. Z. S. 1860, pp. 88[3], 293[4]; Ibis, 1871, p. 15[5]; Scl. & Salv. P. Z. S. 1864, p. 352[6]; 1879, p. 507[7]; Wyatt, Ibis, 1871, p. 328[8]; Pelz. Orn. Bras. p. 225[9]; Tacz. P. Z. S. 1874, p. 519[10].

Phonipara gutturalis, Lawr. Ann. Lyc. N. Y. vii. p. 298[11].

Spermophila gutturalis pallida, Berlepsch, J. f. Orn. 1884, p. 295[12].

Olivacea; pileo antico, capitis lateribus et gutture toto ad medium pectus nigris; abdomine et tectricibus subalaribus flavicantibus; rostro pallide flavido; pedibus obscure corylinis. Long. tota 4·2, alæ 2·1, caudæ 1·9, tarsi 0·54. (Descr. maris ex Lion Hill, Panama. Mus. nostr.)

♀ olivacea, subtus dilutior, ventre medio et subalaribus flavicantibus. (Descr. feminæ ex Medellin, Colombia. Mus. nostr.)

Hab. Panama, Lion Hill (*M'Leannan*[6 11]).—South America from Colombia[7 8 12] to Peru[10], Brazil[1 2], and Guiana.

This widely-ranging species just enters our fauna as far as the line of the Panama railway, where M'Leannan found it, and sent specimens to Mr. Lawrence and to ourselves; we have no record of its occurrence elsewhere within the State. In Colombia, Salmon found it breeding near Medellin[7], making a nest of dry stems of grass rather loosely put together in a bush four or five feet from the ground. The eggs are pale greenish white, marked with large blotches of several shades of greenish brown. Mr. Wyatt, too, found it near a stream at Ocaña, where it associated in great numbers with *S. minuta*, feeding on the seeds of some low bushes[8].

From Colombia it is universally spread over Tropical America, having been met with by Natterer[9], Wallace, Prince Neuwied, and others, and recently by Whitely in the mountains near Roraima in British Guiana, at an elevation of 3500 feet above the sea.

Graf von Berlepsch has separated the Colombian bird from the Brazilian on account of its having a more olive back with less admixture of dark colour. We notice this individual difference, but cannot localize it; both forms are found in Guiana, and the Panama bird is intermediate.

S. gutturalis has no near allies in the genus, but comes next to *S. luctuosa*, from which species it can readily be distinguished.

6. Spermophila corvina.

Spermophila corvina, Scl. P. Z. S. 1859, p. 379[1]; Ibis, 1871, p. 16[2]; Scl. & Salv. Ibis, 1860, p. 33[3]; 1867, p. 278[4]; 1870, p. 836[5]; Lawr. Ann. Lyc. N. Y. viii. p. 180[6]; ix. p. 102[7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551[8]; Frantz. J. f. Orn. 1869, p. 301[9]; Salv. Ibis, 1872, p. 317[10]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 401[11].

Sporophila corvina, Cassin, Pr. Ac. Phil. 1865, p. 169[12].

Spermophila badiiventris, Lawr. Ann. Lyc. N. Y. viii. p. 172[13]; Baird, Trans. Ac. Chicago, i. p. 319, t. 28. f. 3[14].

Nigra unicolor; speculo alari et subalaribus albis; rostro et pedibus nigris. Long. tota 4·4, alæ 2·2, caudæ 1·8, tarsi 0·55.

♀ saturate olivacea; alis caudaque obscurioribus dorsi colore limbatis; subtus dilutior, subalaribus albis. (Descr. maris et feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico, Orizaba (*Sumichrast*[8]), Playa Vicente (*Boucard*[1]); Guatemala, Yzabal (*O. S.*[3]), Choctum (*O. S. & F. D. G.*); Honduras[1], San Pedro (*G. M. Whitely*[5]); Nicaragua, Blewfields (*Wickham*[4]), Chontales (*Belt*[10]), Los Sabalos (*Nutting*[11]), Greytown (*Holland*[6], *Kennicott*[13 14]); Costa Rica (*v. Frantzius*[9]), Angostura[7], Pacuar[7], San José[12] (*Carmiol*[7]), Turrialba (*Carmiol*[7], *Arcé*).

Spermophila corvina is a bird of Eastern Mexico, being found in the State of Vera Cruz[8] and at Playa Vicente, whence the types came[1]. In Guatemala and Honduras, too, it is a bird of the eastern forests, as is also the case in Costa Rica. In Nicaragua alone it approaches the Pacific, having been found at Los Sabalos on the western shore of the Lake of Nicaragua, still, however, on the eastern side of the Cordillera. It is a bird of the lowlands, and is usually found in clearings of the forest feeding on small seeds, especially those of grasses.

No! Los Sabalos is on Lower Rio San Juan

7. Spermophila grisea.

Loxia grisea, Gm. Syst. Nat. i. p. 857 (ex D'Aubenton, Pl. Enl. 393. f. 1[1]).
Spermophila grisea, Scl. Ibis, 1871, p. 18[2]; Scl. & Salv. P. Z. S. 1879, p. 507[3].
Sporophila intermedia, Cab. Mus. Hein. i. p. 149[4].
Spermophila intermedia, Salv. P. Z. S. 1870, p. 189[5].
Spermophila cinerea?, Lawr. Ann. Lyc. N. Y. vii. p. 474 (nec d'Orb. & Lafr.)[6].
Spermophila schistacea, Lawr. Ann. Lyc. N. Y. viii. p. 10[7].

Obscure grisea, alis et cauda fusco-nigricantibus dorsi colore limbatis, speculo alari (interdum vix distinguendo) albo; subtus dilutior, abdomine medio et crisso albis; rostro flavo, pedibus obscure corylinis. Long. tota 4·0, alæ 2·4, caudæ 1·7, tarsi 0·5.

♀ fuscescenti-olivacea, subtus dilutior, ventre medio albo; rostro corneo. (Descr. maris et feminæ ex Bugaba, Panama. Mus. nostr.)

Hab. Panama, Bugaba (*Arcé*[5]), Lion Hill (*M'Leannan*[6 7]).—Colombia[3]; Venezuela[5] and Trinidad[2]; Guiana[2].

Mr. Sclater seems to us to have rightly united the Panama with the Guiana bird of this form, and with them placed all coming from intermediate localities under the name *Spermophila grisea*, that given by Gmelin to D'Aubenton's "Gros bec de Virginie"[1], which evidently refers to the same bird.

Both Mr. Sclater and Mr. Lawrence allude to the white spots on the side of the neck of many Panama birds, and also to their variable character. We have a specimen from Chiriqui with no spots at all, and another where they are plainly shown, so that they do not serve to distinguish Panama from more southern and eastern birds.

The occurrence of *S. grisea* in Guiana has been recorded by Mr. Sclater[2].

Mr. Whitely has recently found it in the vicinity of Mount Roraima at an elevation of 3500 feet.

[Two birds, probably belonging to this genus, have been described from specimens of Mexican origin, but which we have been unable to recognize:—

1. Sporophila othello, Bp. Consp. Av. i. p. 498, ex Mexico. A black species with white alar speculum, very probably either *Oryzoborus funereus* or *Spermophila corvina*.

2. Spermophila parva, Lawr. Ann. N. Y. Ac. Sc. ii. p. 382, ex Tehuantepec city (*Sumichrast*). The type is a female or young bird, impossible to recognize from the description.]

VOLATINIA.

Volatinia, Reichenbach, Av. Syst. t. 79 (1850).

Volatinia may readily be distinguished from *Spermophila* by the form of the nostrils, which are exposed and situated in a membrane at the extremity of the nasal fossa; their form is somewhat elongated. In *Spermophila* the nostril is not so much exposed and rounder. The bill in *Volatinia* is longer, sharper, and more compressed, the culmen straighter and with a sharper ridge, the tomia is more gradually curved.

The wing is short and much rounded, the primaries not much exceeding the secondaries in length; third and fourth = and longest, slightly > second and fifth, first nearly = secondaries. Tail rather long and slightly rounded. Tarsus = middle toe and claw.

The general colour of the plumage is steel-blue black, the female being dusky and striped on the chest.

Volatinia, in one or other of its forms, is spread over the whole of Tropical America from Brazil to Mexico, but is absent from the Antilles.

1. Volatinia splendens.

Fringilla splendens, Vieill. N. Dict. d'Hist. N. xii. p. 173[1].

Volatinia jacarina, Scl. P. Z. S. 1859, p. 365[2]; 1864, p. 174[3]; Scl. & Salv. Ibis, 1859, p. 17[4]; P. Z. S. 1864, p. 352[5]; 1870, p. 836[6]; Cab. J. f. Orn. 1861, p. 2[7]; Lawr. Ann. Lyc. N. Y. vii. p. 332[8]; viii. p. 177[9]; ix. pp. 103[10], 201[11]; Mem. Bost. Soc. N. H. ii. p. 276[12]; Bull. U. S. Nat. Mus. no. 4, p. 20[13]; Sumichrast, Mus. Bost. Soc. N. H. i. p. 552[14]; Frantz. J. f. Orn. 1869, p. 301[15]; Salv. P. Z. S. 1870, p. 190[16]; Cat. Strickl. Col. p. 223[17]; Wyatt, Ibis, 1871, p. 328[18]; Salv. & Godm. Ibis, 1879, p. 200[19]; Boucard, P. Z. S. 1883, p. 444[20]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 383[21].

Volatinia jacarina splendens, Berlepsch, J. f. Orn. 1884, p. 295[22].

Nitente-cæruleo-nigra unicolor; alis caudaque nigris, plumis prope humeros albis; rostro nigricante, mandibulæ

parte basali pallida, pedibus corylinis. Long. tota 4·0, alæ 1·9, caudæ 1·7, tarsi 0·6. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

♀ fusca, alis caudaque nigricantibus, dorsi colore limbatis; subtus multo pallidior, pectore fusco striato, abdomine medio sordide albo. (Descr. feminæ ex Retalhuleu, Guatemala. Mus. nostr.)

Hab. MEXICO[7], Mazatlan (*Grayson*[12]), Presidio (*Forrer*), mountains of Colima (*Xantus*[12]), valley of Mexico (*White*[3]), Jalapa (*de Oca*[2]), hot and temperate regions of Vera Cruz (*Sumichrast*[14]), Guichicovi (*Sumichrast*[13]), Merida in Yucatan (*Schott*[11], *Gaumer*); GUATEMALA (*Constancia*[17]), Dueñas, Escuintla, Retalhuleu, plain of Salama, Choctum (*O. S. & F. D. G.*); HONDURAS, San Pedro (*G. M. Whitely*[6]); NICARAGUA, Sucuyá (*Nutting*[21]); COSTA RICA (*v. Frantzius*[15]), San José (*v. Frantzius*[10]), Barranca, Grecia (*Carmiol*[10]); PANAMA, David (*Hicks*[9]), Chitra (*Arcé*[16]), Lion Hill (*M'Leannan*[5 8]), Paraiso Station (*Hughes*).—COLOMBIA[22]; VENEZUELA; GUIANA[1].

All our Mexican and Central-American males of this bird are alike in being steel-black, with a few white feathers on the shoulders, the under wing-coverts and the bases of the quills being black; they agree with a male from Bartica Grove, in British Guiana, and with the description of *Fringilla splendens* of Vieillot. Graf von Berlepsch refers specimens from Bucaramanga in Colombia, and Puerto Cabello in Venezuela, to the same bird. From Guia and Barra do Rio Negro we have two specimens, which are almost entirely steel-black with hardly a trace of white on the shoulder. Examples from Para have the bases of the quills and the under wing-coverts more or less white, and agree with Brazilian examples, except that in the latter the white is a little more extended. Specimens from the Cauca valley, Ecuador, and southwards to Bolivia have less white than Brazilian birds, but still this feature is very apparent.

Thus two races of *Volatinia* seem to be recognizable by the presence or absence of white on the under wing-coverts and quills. Their ranges, though remarkable, are tolerably definite. The northern form, which should bear the name *Volatinia splendens* (based upon the Cayenne bird), passes from Mexico through Central America and thence to the lower Magdalena valley, Venezuela, the Rio Negro (rather aberrant), and the lowlands of Guiana; the southern form stretches from Brazil, Bolivia, and Peru to the lower Amazons and passes northwards to the Cauca valley: this should be called *V. jacarina* (Linn.). These birds have usually been treated as one species, but seeing that their differences are associated with a definite distribution they may well bear distinct names.

Volatinia splendens is found from the sea-level to an altitude of 5000 feet, and is a common resident species in Mexico and Central America, being found in all open country where low bushes are thickly distributed. The male is a conspicuous bird, sitting on an outer spray of a bush, and every now and then springing into the air and alighting again on the same twig from which he rose.

Salmon took some nests of *Volatinia jacarina* near Medellin in Colombia. They were, he says, carefully concealed very close to or on the ground amongst grass or

herbage in waste places. They were slightly constructed of dry grass-stems, lined with hair, or sometimes with the stems of a small flowering plant. The eggs, two in number, are white or bluish white, spotted with red or red-brown, chiefly in a zone round the larger end.

PHONIPARA.

Phonipara, Bonaparte, Consp. Av. i. p. 494 (1850).
Euetheia, Reichenbach, Av. Syst. Nat. t. lxxix. (1850).

This little genus is chiefly of Antillean habitat, four species being found in various islands. A single species occurs in Mexico and Central America, a closely allied form occurring in the island of Cozumel.

The bill of *P. pusilla* is sharp, the culmen but slightly curved; the nostrils are exposed at the distal end of the nasal fossa, and in front of this fossa is a slight depression, more definite in some specimens than others. The tomia of the maxilla is bent, the outer portion slightly arched; the tomia of the mandible is nearly straight from the angle to the tip, the sides of the mandible being much curved inwards.

The legs are rather stout, the tarsus being about equal to the middle toe and claw. The wings are rounded, the second, third, fourth, and fifth primaries being nearly equal and longest; the tail is moderate and rounded.

The generic name *Phonipara* was proposed by Bonaparte in 1850 for *P. canora* and several of its allies. *Euetheia* was proposed by Reichenbach, it is said, for the same birds, and has been adopted by several later writers in place of *Phonipara*. We think, however, that the latter name may be retained, seeing that *Euethia* was introduced without a line of description, and the type species must always remain uncertain. In point of date *Euethia* has a slight advantage, having been published, so Dr. Meyer tells us, on 1st June, 1850, the sheet of the 'Conspectus Avium' containing *Phonipara* bearing the signature 30th July, 1850.

1. Phonipara pusilla.

Tiaris pusilla, Sw. Phil. Mag. new ser. i. p.438[1].
Euethia pusilla, Cab. Mus. Hein. i. p. 146[2]; J. f. Orn. 1861, p. 1[3].
Phonipara pusilla, Scl. P. Z. S. 1856, p. 304[4]; 1859, pp. 365[5], 379[6]; 1864, p. 174[7]; Lawr. Ann. Lyc. N. Y. vii. p. 298[8]; ix. pp. 103[9], 201[10]; Bull. U. S. Nat. Mus. no. 4, p. 20[11]; Scl. & Salv. P. Z. S. 1864, p. 352[12]; 1879, p. 507[13]; Cassin, Pr. Ac. Phil. 1865, p. 169[14]; Salv. Ibis, 1866, p. 193[15]; P. Z. S. 1867, p. 142[16]; 1870, p. 190[17]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552[18]; Frantz. J. f. Orn. 1869, p. 301[19]; Wyatt, Ibis, 1871, p. 328[20]; Boucard, P. Z. S. 1883, p. 444[21].
Fringilla lepida, Licht. Preis-Verz. Mex. Vög. p. 2, cf. J. f. Orn. 1863, p. 56[22]; Wagl. Isis, 1831, p. 525[23].
Tiaris olivacea, Cassin, Pr. Ac. Phil. 1848, p. 91 (nec Latham)[24].

Supra olivacea; vertice antico, genis et pectore toto nigris, stria superciliari a naribus ducta et gula læte flavis; abdomine fusco, crisso olivaceo intermixto; nostro nigro, pedibus corylinis. Long. tota 4·0, alæ 2·0, caudæ 0·7, tarsi 0·6. (Descr. maris ex Paraiso, Panama. Mus. nostr.)

♀ olivacea, subtus pallidior et fusco lavata, gula et abdomine medio sordide albicantibus. (Descr. feminæ ex Sarchi, Costa Rica, Smiths. Inst. no. 41,387. Mus. nostr.)

Hab. MEXICO [2 23 24], Temiscaltepec, Real del Monte (*Bullock* [1]), valley of Mexico (*White* [7]), Cordova (*Sallé* [4]), Jalapa (*Pease* [24], *de Oca* [5]), Orizaba (*Sumichrast* [18]), Totontepec (*Boucard* [6]), Dondominguillo (*Sumichrast* [11]), Merida in Yucatan (*Schott* [10], *Gaumer* [21]); GUATEMALA, Sakluk near Peten (*O. S.*[15]); COSTA RICA (*v. Frantzius* [3 19]), San José (*v. Frantzius* [9], *Carmiol* [14]), Sarchi (*Carmiol* [9]), Turrialba (*Arcé*); PANAMA, Chitra [17], Santa Fé [16] (*Arcé*), Lion Hill (*M'Leannan* [8 12]), Paraiso Station (*Hughes*).—COLOMBIA [13 20].

The little species was first sent from Mexico by Bullock [1], and it has since been found over the greater part of Southern Mexico, being common in the valley of Orizaba up to an elevation of 4600 feet [18]. These Mexican specimens have the darkest heads, cheeks, and under plumage of any of our series. In Yucatan and thence southwards through Peten, Costa Rica, the State of Panama, and Colombia individuals have slightly more olivaceous cheeks, and the black of the head is more restricted; they thus approach the Cozumel bird, where these characters become more definite, these last-named birds forming a step towards the Antillean *P. olivacea*. We doubt, however, if the links connecting all these birds together exist, though in all probability the continental ones belong to one somewhat variable but indivisible species.

Salmon found *P. pusilla* breeding in the Colombian State of Antioquia, the eggs being white, marked, especially at the larger end, with brown spots [13].

In Guatemala *P. pusilla* must be considered a rare bird; we ourselves only once met with it in the savana of Sakluk near Peten [15].

2. Phonipara intermedia.

Phonipara pusilla, Salv. Ibis, 1885, p. 190 [1].

Euetheia olivacea intermedia, Ridgw. Descr. Cozumel B. p. 2 [2]; Proc. U. S. Nat. Mus. viii. p. 568 [3].

P. pusillæ affinissima, sed pileo dorso concolori, fronte stricte nigra, regione parotica olivacea a gula flava lineola nigra bene definita separata, forsan distinguenda.

Hab. MEXICO, Cozumel Island off the coast of Yucatan (*Benedict* [2 3], *Devis* [1], *Gaumer*).

Mr. Gaumer has recently sent us a good series of specimens of this bird, which is certainly intermediate between *P. pusilla* on the one hand, and *P. olivacea* on the other. The differences from the latter consist in its larger blacker bill and the darker upper surface. At present it is only known from Cozumel, where it has been found by all the collectors who have recently visited that island.

CYANOSPIZA.

Cyanospiza, Baird, B. N. Am. p. 500 (1858); Baird, Brew., & Ridgw. N. Am. B. ii. p. 81.
Passerina, Vieillot, Anal. p. 30; Coues, Key N. Am. B. ed. 2, p. 390.

This is a genus strictly confined to the United States, Mexico, and Central America, but south of Guatemala only the two migratory species *C. cyanea* and *C. ciris* occur. Another migratory species, *C. amœna*, visits Western Mexico, in which country are two peculiar species and a third, a rare visitant to Guatemala. All these six species are very distinct, more so perhaps than those of any genus of similar extent.

Cyanospiza is usually placed near *Guiraca* and *Spermophila*, but has little in common with those genera. The bill is decidedly weaker and smaller in proportion to the size of the bird. The angle of the tomia is less conspicuous, and the culmen straighter and but slightly curved; the second, third, and fourth quills are the longest, the first =fifth, the wing being rather rounded, but more so in the resident than in the migratory species. The tail is nearly even or slightly emarginate. The feet are moderately strong, the tarsus being about equal to the middle toe and claw.

The generic name *Cyanospiza* was proposed by Prof. Baird in place of *Spiza* of Bonaparte, which that author had himself used previously in a different sense. *Passerina*, Vieillot, has recently been adopted by Dr. Coues. This is not *Passerina* of Linnæus, which has been used in Botany.

1. Cyanospiza versicolor.

Spiza versicolor, P. Z. S. 1837, p. 120[1]; Cab. Mus. Hein. i. p. 148[2]; Scl. P. Z. S. 1857, p. 214[3]; 1859, pp. 365[4], 379[5]; Baird, Mex. Bound. Surv., Zool. ii. Birds, p. 17[6]; Scl. & Salv. Ibis, 1859, p. 17[7]; Dugès, La Nat. i. p. 140[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551[9]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 86[10]; Lawr. Mem. Bost. Soc. N. H. ii. p. 276[11]; Sennett, Bull. U. S. Geol. Surv. iv. p. 20[12]; v. p. 393[13]; Salv. Cat. Strickl. Coll. p. 224[14].
Passerina versicolor, Coues, Key N. Am. B. ed. 2, p. 391[15].
Carduelis luxuosus, Less. Rev. Zool. 1839, p. 41[16].
Spiza lazulina, Licht. Nomencl. p. 45 (fide Bonaparte[17]).

Nigro-purpurea; fronte, capite summo et uropygio cyaneis, plumis corporis supra a fronte postica ad dorsum medium et gutture toto sanguineo suffusis, loris nigris; alis et cauda nigris extus purpureo limbatis; rostro corneo, pedibus corylinis. Long. tota 4·3, alæ 2·5, caudæ 2·1, tarsi 0·65.

♀ supra brunnea unicolor, alis et cauda fusco-nigris, illarum tectricibus dorsi colore limbatis; subtus multo pallidior, gula et abdomine medio sordide albidis. (Descr. maris et feminæ ex Presidio, Mexico. Mus. nostr.)

Hab. North America, Lower California, Texas[10 12 13 15].—Mexico[1 2 14 16], Boquillo in Nuevo Leon (*Couch*[6]), Tepic (*Grayson*[11]), Mazatlan (*Grayson*[11], *Forrer*), Presidio (*Forrer*), Cueramaro (*Dugès*[8]), Temiscaltepec[1], Orizaba (*Sumichrast*[9], *Botteri*[3]), Jalapa (*de Oca*[4]), Oaxaca (*Boucard*[5]); Guatemala (*Skinner*[7], *Van Patten*[10]).—Peru ??

Though found close up to the Texan frontier of the United States, the only claim

C. versicolor had for a long time to be included in the birds of North America was its occurrence in the peninsula of Lower California, where it breeds, Mr. Xantus having found a nest and three eggs on May 5th at Cape San Lucas. It is now known to cross the Rio Grande, Mr. Sennett and Dr. Merrill having both met with it on the Texan side of the river. It has also occurred in Michigan, but this is far outside its ordinary range.

In Mexico *C. versicolor* is widely distributed, and is common, according to Grayson, at Mazatlan, where it is a constant resident, as well as at Tepic in the State of Jalisco. The same traveller says that it has a sweet song, which it utters morning and evening from the top of a bush [11]. Sumichrast includes it amongst the resident birds of Vera Cruz; but he says it is quite rare, though found in the neighbourhood of Orizaba [9].

In Guatemala it is still more scarce. We never met with it ourselves; but the late Mr. Skinner sent a specimen to Gould, and another has reached the Smithsonian Institution from Dr. Van Patten.

2. **Cyanospiza rositæ.** (Tab. XXV.)

Cyanospiza rositæ, Lawr. Ann. Lyc. N. Y. x. p. 397 [1]; Bull. U. S. Nat. Mus. no. 4, p. 20 [2]; Salv. Ibis, 1874, p. 309 [3].

Læte cærulea; dorso certa luce viridescente vix induto, alis et cauda nigricantibus dorsi colore limbatis; loris nigris, ciliis albis; abdomine toto læte rosaceo plerumque cæruleo intermixto, crisso pure rosaceo; rostro corneo, mandibula subtus pallida, pedibus corylinis. Long. tota 5·3, alæ 2·8, caudæ 2·1, tarsi 0·65.

♀ supra fusca, dorso postico et cauda cærulescentibus; subtus brunnea, ventre pallidiore et rosaceo lavato. (Descr. maris et feminæ ex Cacoprieto, Tehuantepec, Mexico. Mus. nostr.)

Hab. Mexico, Cacoprieto, isthmus of Tehuantepec (*Sumichrast* [1 2 3]).

This is another very beautiful species, whose range, so far as we know, is limited to a small district on the isthmus of Tehuantepec, where alone the late Prof. Sumichrast met with it, and from whom we have received specimens of both sexes and young males in change of plumage.

The combination of blue and rosy pink in the plumage of this species suggests that it may occupy an intermediate position between *C. cyanea* and *C. ciris*, but there is nothing else in common with them to support such a view, and *C. rositæ* is, in reality, a very isolated form, in fact quite as distinct as any of the other species of *Cyanospiza*, a genus remarkable for the definite character of all its species, which, again, are free from any perceptible variation in themselves. If the specific characters of all birds were drawn with the precision of the members of *Cyanospiza*, ornithologists would have an easy task in defining them!

3. **Cyanospiza leclancheri.**

Passerina leclancheri, Lafr. Mag. Zool. 1841, Ois. t. 22 [1].

Spiza leclancheri, Bp. Consp. Av. i. p. 475 [2].

Cyanospiza leclancheri, Dugès, La Nat. i. p. 140 [3]; Scl. & Salv. P. Z. S. 1870, p. 551 [4]; Lawr. Mem.

Bost. Soc. N. H. ii. p. 277 [5]; Bull. U.S. Nat. Mus. no. 4, p. 20 [6]; Salv. P. Z. S. 1883, p. 421 [7].

Supra læte cærulea, dorso medio paullo obscuriore, capite summo flavo-viridi, alis caudaque fusco nigricantibus dorsi colore limbatis; oculorum ambitu, loris et corpore toto subtus flavissimis, pectore rubro-aurantio; rostro corneo; pedibus corylinis. Long. tota 4·8, alæ 2·8, caudæ 2·2, tarsi 0·65. (Descr. maris ex Tehuantepec, Mexico. Mus. nostr.)

♀ mari similis, sed coloribus omnibus minus nitidis.

Hab. MEXICO, Acapulco (*Leclancher* [1], *A. H. Markham* [7]), San Juan del Rio (*Rébouch* [4]), Sierra Madre, Rio de la Ameria (*Xantus* [5]), Tapana [6], Tehuantepec city [6], Cacoprieto (*Sumichrast*).

This beautiful species was discovered by M. Leclancher, one of the officers of the French vessel 'Venus,' near Acapulco in Mexico during the expedition of that ship [1]. It was near the same spot that Captain A. H. Markham obtained an example in the month of March 1880, more than forty years afterwards [7]. *C. leclancheri*, as the late Baron Lafresnaye called this bird, is restricted in its range to Western Mexico, and only passes a short way inland, San Juan del Rio being the furthest point from the coast whence we have seen it [4]. The southern limit of its range is the neighbourhood of Tehuantepec, where Sumichrast found it and sent us specimens [6].

The female is said to be like the male, the colours being less vivid. The species would thus differ from all its congeners, where the difference between the sexes is most marked.

4. Cyanospiza amœna.

Emberiza amœna, Say in Long's Exp. ii. p. 47 [1].

Cyanospiza amœna, Baird, Brew., & Ridgw. N. Am. B. ii. p. 84 [2]; Lawr. Mem. Bost. Soc. N. H. ii. p. 276 [3].

Passerina amœna, Coues, Key N. Am. B. ed 2, p. 391 [4].

Capite, cervice undique, tectricibus alarum minoribus et uropygio læte cæruleis, dorso nigricante-cæruleo; alis et cauda nigris, dorsi colore limbatis, illis fascia alba notatis, pectore læte castaneo; corpore subtus reliquo albo; rostri maxilla cornea, mandibula pallida, pedibus obscure corylinis. Long. tota 4·7, alæ 2·9, caudæ 2·2, tarsi 0·65. (Descr. maris Salt Lake City, Smiths. Inst. no. 58596. Mus. nostr.)

♀ supra fusco-brunnea, plumis medialiter vix obscurioribus; subtus sordide albicans, ventre imo paullo pallidiore. (Descr. exempl. ex California, Smiths. Inst. no. 79652. Mus. nostr.)

Hab. NORTH AMERICA, high central plains to the Pacific Ocean [2 4].—MEXICO, Mazatlan (*Grayson* [3]), valley of Mexico (*Mus. S. & G.*).

This is probably a more abnndant bird in Mexico than we are at present aware of, for the only records we have of its occurrence within our limits at all are one given by Grayson of its presence at Mazatlan [3] and the evidence of a skin in our possession which we found in a large collection of birds made near the city of Mexico. It seems, like *C. cyanea* and *C. ciris*, to be a migratory species in the United States, reaching its northern limits in British Columbia in May. It is also found in Arizona; hence it is doubtless to be found in the frontier State of Sonora and further southwards.

C. amœna is a western species, replacing the eastern *C. cyanea* in the west, many of the habits of the two, such as the song, being very similar. The nest is described as strongly built of finely interwoven grasses, lined with horsehair and cobwebs, and placed in a fork of a bush a few feet from the ground. The eggs are light blue when fresh, this colour soon fading to bluish white [2].

5. Cyanospiza cyanea.

Tanagra cyanea, Linn. Syst. Nat. i. p. 315 [1].

Cyanospiza cyanea, Scl. P. Z. S. 1859, p. 379 [2]; 1864, p. 174 [3]; Scl. & Salv. Ibis, 1859, p. 18 [4]; P. Z. S. 1870, p. 836 [5]; Cab. J. f. Orn. 1861, p. 2 [6]; Lawr. Ann. Lyc. N. Y. viii. p. 180 [7]; ix. pp. 103 [8], 201 [9]; Bull. U. S. Nat. Mus. no. 4, p. 20 [10]; Dugès, La Nat. i. p. 140 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [12]; Frantz. J. f. Orn. 1869, p. 301 [13]; Salv. P. Z. S. 1870, p. 190 [14]; Ibis, 1872, p. 317 [15]; Cat. Strickl. Coll. p. 224 [16]; Ibis, 1885, p. 190 [17]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 82 [18]; Gundl. Av. Cub. p. 93 [19]; Sennett, Bull. U. S. Geol. Surv. iv. p. 20 [20]; Boucard, P. Z. S. 1883, p. 444 [21]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. pp. 373 [22], 383 [23], 392 [24].

Passerina cyanea, Coues, Key N. Am. B. ed. 2, p. 391 [25].

Cærulea, capite saturatius, corpore reliquo certa luce viridescente; alis caudaque fusco-nigricantibus, dorsi colore limbatis; rostro corneo; pedibus plumbeis. Long. tota 4·7, alæ 2·7, caudæ 2·1, tarsi 0·75. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ brunnea, alis caudaque fuscis dorsi colore limbatis; subtus pallide fusco-alba, pectore et hypochondriis fusco striatis. (Descr. feminæ ex Coban, Guatemala. Mus. nostr.)

Hab. North America, Eastern States from Canada to Kansas, Indian Territory and Texas [18 20 25].—Mexico, Guanajuato (*Dugès* [11]), valley of Mexico (*White* [3]), State of Vera Cruz in winter (*Sumichrast* [12]), Totontepec, Playa Vicente, Oaxaca (*Boucard* [2]), Santa Efigenia (*Sumichrast* [10]), Merida in Yucatan (*Schott* [9]), Progreso (*Gaumer* [21]), Cozumel I. (*Devis* [17]); British Honduras, Belize (*Blancaneaux*); Guatemala (*Constancia* [16]), Dueñas (*O. S.*[4]), Escuintla, Retalhuleu, San Gerónimo, Coban (*O. S. & F. D. G.*); Salvador, La Union (*O. S.*); Honduras, San Pedro (*G. M. Whitely*[5]); Nicaragua, Chontales (*Belt* [15]), Sucuyá [23], Omotepe I.[23], San Juan del Sur [22] (*Nutting*), Greytown (*Holland* [7]); Costa Rica (*v. Frantzius* [6 8 13]), Barranca, San José, Dota Mountains (*Carmiol* [8]), Panama, Volcan de Chiriqui, Bugaba (*Arcé*). —Cuba [19].

The Indigo-bird, under which name this species is known in the Eastern States of North America, is a winter visitor to Mexico and Central America, at which season it spreads over a large part of the country as far south as the State of Panama. Its range in Mexico is mostly confined to the eastern part of that country, for, though traced to Guanajuato and the valley of Mexico, it is absent from the western parts until we reach the isthmus of Tehuantepec, a range of distribution followed by several birds whose summer quarters embrace the eastern States of the northern continent.

In Guatemala it is common, and may usually be seen in small flocks consisting of birds in various stages of plumage, adult males being rarely seen. It is here a dull

uninteresting species, uttering no song, but simply call-notes. Its stay in the south extends from September to April.

In Cuba, too, it occurs every year during its migrations, and is to be seen in plantations near the edges of woods, but never in forest [19].

In the United States *C. cyanea* is well known as a summer bird, and it breeds throughout its northern range, making, in the centre of a low thick bush, a nest composed of grasses and sedges and lined with hair. The eggs are usually white, with a faint blue shade. Dr. Coues adds that they are not seldom speckled.

The song of *C. cyanea* is not considered of high quality. Dr. Coues describes it as rather weak and delivered by the well-meaning vocalist in a low rambling strain, as if the performer were tired or indifferent.

The Indigo-bird is kept in large numbers in cages, and many are yearly brought to Europe.

6. **Cyanospiza ciris.**

Emberiza ciris, Linn. Syst. Nat. i. p. 313 [1].

Cyanospiza ciris, Scl. & Salv. Ibis, 1859, p. 17 [2]; P. Z. S. 1870, p. 836 [3]; Scl. P. Z. S. 1859, p. 379 [4]; Lawr. Ann. Lyc. N. Y. viii. p. 177 [5]; ix. pp. 103 [6], 201 [7]; Mem. Bost. Soc. N. H. ii. p. 276 [8]; Bull. U. S. Nat. Mus. no. 4, p. 20 [9]; Salv. P. Z. S. 1870, p. 190 [10]; Cat. Strickl. Coll. p. 224 [11]; Ibis, 1885, p. 190 [12]; Dresser, Ibis, 1865, p. 491 [13]; Dugès, La Nat. i. p. 140 [14]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [15]; Frantz. J. f. Orn. 1869, p. 301 [16]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 87 [17]; Gundl. Orn. Cub. p. 93 [18]; Sennett, Bull. U. S. Geol. Surv. iv. p. 20 [19]; v. p. 392 [20]; Boucard, P. Z. S. 1878, p. 57 [21]; 1883, p. 444 [22]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. pp. 383 [23], 392 [24].

Spiza ciris, Moore, P. Z. S. 1859, p. 58 [25]; Taylor, Ibis, 1860, p. 111 [26].

Passerina ciris, Coues, Key N. Am. B. ed. 2, p. 391 [27].

Capite et cervice tota (præter partem anticam) læte cæruleis, dorso medio stramineo; alis et cauda fuscis purpureo suffusis, tectricibus alarum minoribus purpureis, majoribus viridibus; dorso imo rufo-purpureo, ciliis et corpore toto subtus coccineis; rostro corneo, pedibus obscure corylinis. Long. tota 5·0, alæ 2·9, caudæ 2·2, tarsi 0·75. (Descr. maris ex Volcan de Agua, Guatemala. Mus. nostr.)

♀ viridi-olivacea, alis caudaque extus ejusdem colori subtus fulva, lateraliter olivaceo, medialiter rosaceo lavata. (Descr. feminæ ex Escuintla, Guatemala. Mus. nostr.)

Hab. North America, South Atlantic and Gulf States, Illinois, Texas [13 17 19 20 27].—Mexico (*Mann* [11]), Cueramaro (*Dugès* [14]), Mazatlan (*Grayson* [8]), Presidio (*Forrer*), Plains of Colima (*Xantus* [8]), Playa Vicente (*Boucard* [4]), State of Vera Cruz in winter (*Sumichrast* [15]), Santa Efigenia, Tehuantepec city (*Sumichrast* [9]), Merida in Yucatan (*Schott* [7], *Gaumer* [22]), Cozumel (*Devis* [12], *Gaumer*); British Honduras, Old River Belize (*Leyland* [25]); Guatemala, Peten (*Leyland* [25]), Dueñas (*O. S.*[2]), Volcan de Agua, Escuintla, Santa Lucia Cosamalguapa, Huamuchal, San Gerónimo, Coban, Teleman (*O. S. & F. D. G.*); Honduras, Omoa (*Leyland* [25]), Comayagua (*Taylor* [26]), San Pedro (*G. M. Whitely* [3]); Nicaragua, Omotepe I.[24], Sucuyá [23] (*Nutting*); Costa Rica [6 13] (*v. Frantzius* [16]), Tres Rios (*Boucard* [21]); Panama, Volcan de Chiriqui (*Arcé* [10], *Hicks* [5]).—Cuba [18].

The Nonpareil, under which name this Finch is commonly known, is, like its congener, *Cyanospiza cyanea*, a familiar bird in the summer months in the more southern of the United States that border the Atlantic and the Gulf of Mexico. In its southern migration it spreads over nearly the same extent of country as *C. cyanea*, and reaches the State of Panama; but westwards in Mexico it passes to the neighbourhood of Mazatlan, where both Grayson and Mr. Forrer found it. In Guatemala it is common everywhere up to an elevation of about 5000 feet. It is usually to be seen in small flocks in open country, and near the edges of woods, but not in the forest itself. It is not uncommon in Cuba from October to April, and is frequently kept in cages, not only for the beauty of its plumage, but also for its pleasant song [18]. In the States it builds its nest early in May, forming it of dry grass mingled with silk of caterpillars, hair, and fine rootlets. The eggs have a dull pearly-white ground, and are marked with blotches and dots of purplish and reddish brown; they thus differ considerably from the eggs of *C. cyanea* and *C. amœna*.

C. ciris is captured in large numbers in the States, and many are sent to Europe, where they are favourite cage-birds, accommodating themselves readily to their confinement and frequently rearing broods in captivity.

HAPLOSPIZA.

Haplospiza, Cabanis, Mus. Hein. i. p. 147 (1851).

Two species have been placed in this genus, that described below from Mexico and the Brazilian *H. unicolor*. It is closely allied to *Phrygilus*, and, did we know the colour of the plumage of the sexes, it might be advisable to merge *Haplospiza* in *Phrygilus*.

The bill of *H. uniformis* is rather long and sharp, the culmen nearly straight; the tomia of the maxilla is bent, the outer portion being very slightly waved. The corresponding portion of the mandible is straight. The wings are rather elongated, the second and third primaries the longest, the third a little longer than the first. The tail is moderate and nearly square. The feet are moderate, and the claws feeble; the tarsus is longer than the middle toe.

1. **Haplospiza uniformis.** (Tab. XXVII. fig. 1.)

Haplospiza uniformis, Scl. & Salv. Nomencl. Av. Neotr. pp. 29, 157 [1].

Plumbescenti-cinerea unicolor, subtus vix dilutior, remigibus et rectricibus intus cinereo-nigricantibus; rostro et pedibus pallide corylinis. Long. tota 5·0, alæ 3·0, caudæ 2·0, rostri a rictu 0·6, tarsi 0·75. (Descr. exempl. typ. ex Jalapa, Mexico. Mus. nostr.)

Hab. MEXICO, Jalapa (*de Oca* [1]).

This species is still only known to us from the single specimen which formed the type

of the description. It was contained in a collection transmitted to this country by Señor R. Montes de Oca.

It is allied to the Brazilian *H. unicolor*, from which it differs in being larger, with a larger bill and longer wings and stronger feet. The general colour, too, is rather darker.

AMPHISPIZA.

Amphispiza, Coues, Birds N. W. p. 234 (1874).

Dr. Coues proposed this name for the two North American species previously known as *Poospiza bilineata* and *P. belli*, Mr. Sclater having placed them in *Poospiza* in 1857. The type of the latter genus is *P. nigro-rufa*, a South American species, with which are associated some ten or eleven others, all of them (with the exception of *P. bonapartii* of Western Peru) from districts lying to the south of the basin of the Amazons, the metropolis of the genus being the upper La Plata region and the adjoining parts of Bolivia.

From *Poospiza*, *Amphispiza* may be distinguished by the bill being somewhat stouter and the culmen towards the base more tumid and less sharp; the sides of the maxilla are also rather more tumid, but the differences are not so great as might be expected from the wide difference of habitat.

In this genus Mr. Ridgway has placed *Zonotrichia quinquestriata*, and we think rightly so, but we do not follow him in associating *Zonotrichia mystacalis* in the sa e genus, this bird being best placed in *Hæmophila* together with *H. humeralis* to which it is evidently closely allied. Their very short rounded wings and long tails suggest this position for them.

The bill of *A. bilineata* is of moderate dimensions, rather acute, the tomia of the maxilla is angular, the outer portion slightly concave; the nostrils are exposed. The wings are rounded, the 2nd, 3rd, 4th, and 5th quills nearly equal and longest; tail slightly rounded, nearly equal to the wings; legs rather stout, the tarsus longer than the middle toe and claw.

A. quinquestriata conforms to these characters, but is a rather larger bird with a more elongated bill.

1. **Amphispiza bilineata.**

Emberiza bilineata, Cassin, Pr. Ac. Phil. 1850, p. 104, t. 3 [1].

Poospiza bilineata, Scl. P. Z. S. 1857, p. 7 [2]; Baird, U. S. Bound. Surv. ii. Birds, p. 15 [3]; Baird, Brew., & Ridgw. N. Am. B. i. p. 590 [4].

Amphispiza bilineata, Coues, Birds N. W. p. 234 [5]; Key N. Am. B. ed. 2, p. 375 [6]; Sennett, Bull. U. S. Geol. Surv. iv. p. 18 [7]; Belding, Pr. U. S. Nat. Mus. vi. p. 343 [8].

Supra murinus fere unicolor, alis fusco-nigricantibus dorsi colore limbatis, cauda nigricante, rectricibus duabus utrinque externis albo terminatis, extima quoque in pogonio externo alba; superciliis elongatis, ciliis (pro parte), stria rictali pectoris, lateribus et abdomine toto albis; genis griseis, loris et gutture toto nigris,

hypochondriis murino tinctis, rostro et pedibus plumbeo-nigris. Long. tota 4·8, alæ 2·35, caudæ 2·3, tarsi 0·7. (Descr. feminæ ex La Paz, California. Mus. nostr.)

♂ feminæ omnino similis.

Av. jun. dorso medio vix striato, corpore subtus omnino albo, pectore murino vix striato. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. North America, Utah and Nevada [6], California [6] and Texas [1 7].—Mexico, Tamaulipas (*J. H. Clark* [3]), Guaymas (*Belding* [8]).

This well-defined Finch is not common in Mexico, and we have no specimens with definite localities from any place in Southern or Central Mexico, nor any records of its having been obtained in either district. Along the northern frontier it seems to be more frequently met with both in the Rio Grande valley and in that of the Gila and the adjoining country. Northwards it occurs in the middle province of the United States from the 40th parallel between the Rocky Mountains and the Sierra Nevada, that is in the sage-brush chaparral. It also occurs in California, and is migratory in the northern part of its range [6]. The song of *A. bilineata* is described as simple but composed of very sweet notes [4]. Its nest is usually placed in a sage-bush near the ground and is built of straws and lined with fine roots. The eggs are of a rounded-oval shape, white, with a slight tinge of blue when fresh [4].

2. **Amphispiza quinquestriata.** (*Zonotrichia quinquestriata*, Tab. XXVII. fig. 2.)

Zonotrichia quinquestriata, Scl. & Salv. P. Z. S. 1868, p. 323 [1].

Amphispiza quinquestriata, Ridgw. Ibis, 1883, p. 400 [2].

Schistacea, interscapulio vinaceo tincto; alis caudaque fusco-nigricantibus, secundariorum et tectricum majorum marginibus externis brunnescentibus; superciliis, striga utrinque rictali et gula media albis; gula superiori utrinque et inferiori tota cum pectore medio nigris; ventre medio, hypochondriis et crissi plumarum marginibus nigris; rostro nigricanti-æneo, mandibula flavo notata; pedibus corylinis. Long. tota 6·5, alæ 2·8, caudæ 2·5, tarsi 0·7. (Descr. exempl. typ. ex Mexico. Mus. Brit.)

Hab. Mexico [1].

The type of this well-marked species is still the only specimen we have seen up to the present time. It was for a long time in the late Mr. Gould's possession, having been sent him with some Humming Birds from Mexico. Judging from the preparation of the skin, we believe that it was made by Floresi, who resided for some time in the mining districts of Central Mexico, and who corresponded with Gould.

ZONOTRICHIA.

Zonotrichia, Swainson, Faun. Bor.-Am. iii. p. 493 (1831); Baird, Brew., & Ridgw. N. Am. B. i. p. 565; Coues, Key N. Am. B. ed. 2, p. 381.

This name was first used by Swainson, in a subgeneric sense, for several North-American Finches, which have been since removed into as many genera. One of these, *Z. leucophrys*, has been selected as the type of the genus *Zonotrichia*. Though several

birds, mostly from Mexico, have been added to *Zonotrichia*, chiefly by Mr. Sclater and others, these have since been placed elsewhere, so that the genus now contains about ten species, whereof six are of northern and three of southern domicile, the latter being *Z. pileata* and its two Patagonian allies; the tenth is the abnormal *Z. vulcani* of the highlands of Costa Rica, the true position of which is perhaps still to be indicated. Of the northern species two only are known to enter our region, though *Z. querula* will doubtless be found on the southern, as it is on the northern, side of the Rio Grande Valley.

Zonotrichia seems to be essentially a Bunting, and, with several allied genera, would be placed in the Emberizinæ by those who see their way to employing subfamilies in the great Family Fringillidæ.

The bill of *Z. leucophrys* is of moderate size, conical, the culmen nearly straight; the maxilla is slightly tumid below the nostrils, and somewhat compressed towards the tip; the tomia has a distinct angle; there is a membrane over the nasal fossa above the nostrils. The tarsus and the middle toe, with its claw, are subequal, and the lateral toes are subequal. The second, third, and fourth quills of the wing are equal and longest, and form the tip of the wing; the first equals the fifth; the secondaries reach to within $\frac{3}{8}$ inch of the longest primaries; the tail is nearly even, and of nearly the same length as the wings. The plumage generally has streaks on the middle of the back; the wings have two whitish bars; the under surface has no streaks; the tail has the lateral rectrices plain; the head has a median stripe (wanting in some southern species).

1. Zonotrichia leucophrys.

Emberiza leucophrys, Forster, Phil. Trans. lxii. pp. 403, 426[1].

Zonotrichia leucophrys, Baird, Mex. Bound. Surv. ii., Birds, p. 15[2]; Scl. P. Z. S. 1864, p. 174[3]; Dugès, La Nat. i. p. 140[4]; Baird, Brew., & Ridgw. N. Am. B. i. p. 566[5]; Coues, Key N. Am. B. ed. 2, p. 383[6].

Supra schistacea, uropygio brunnescente immaculato, dorso medio rufescente-brunneo striato; capite summo nigro, vertice medio late, superciliis (ab oculis) et ciliis ipsis albis, alis et cauda brunneis, illis albo bifasciatis, subalaribus et campterio albis; subtus grisea gula et abdomine medio albidis, crisso isabellino induto; rostro et pedibus rufescentibus. Long. tota 6·75, alæ 3·1, caudæ 3·0, rostri a rictu 0·6, tarsi 0·9. (Descr. exempl. ex urbe Mexico. Mus. nostr.)

Hab. North America, Hudson's Bay [1], U. S. from the Atlantic to the Rocky Mountains, Cape St. Lucas [5 6].—Mexico, Tamaulipas (*Couch* [2]), Guanajuato (*Dugès* [4]), valley of Mexico (*White* [3]).

The White-crowned Sparrow, under which name this beautiful Finch is known in North America, is one of the most widely distributed species of that continent, being found from Greenland to Cape San Lucas, and from the Atlantic Ocean to the Rocky Mountains. It was first described by Forster more than a hundred years ago [1], and received its English name from Pennant. In Mexico it probably appears only as a

winter visitor to the highlands. Our specimens are from the valley of Mexico. It has been noticed at Guanajuato [4] and near the Rio Grande frontier [2]; but its name is absent from Sallé's and Boucard's lists, as well as from those of De Oca, Sumichrast, and Grayson.

In North America it breeds in the Wahsatch Mountains and elsewhere, and plentifully in Labrador [5 6]. Its nest is placed on the ground, and is usually made of moss and grasses, and lined with fine fibrous roots. The eggs have a light greenish-white ground-colour, and are thickly marked, chiefly about the larger end, with reddish-brown and light purple-brown spots [5].

2. **Zonotrichia intermedia.**

Zonotrichia leucophrys, var. *intermedia*, Ridgw. Bull. Essex Inst. v. p. 198 [1].

Zonotrichia intermedia, Ridgw. Field & Forest, 1877, p. 198 [2].

Zonotrichia leucophrys, var. *gambeli*, Baird, Brew., & Ridgw. N. Am. B. i. p. 569 [3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [4] (nec *Fringilla gambeli*, Nutt.).

Sp. precedenti valde affinis sed loris et superciliis albidis confluentibus, colore nigro capitis lateribus haud oculorum ambitum attingente.

Hab. North America, Rocky Mountains to the Pacific Ocean [3].—Mexico, Mazatlan (*Grayson* [4]).

We believe that it is to this bird that Mr. Lawrence refers Grayson's Mazatlan specimens, under the name *Z. leucophrys*, var. *gambeli* [4], but we have no Mexican examples to confirm this opinion. The true *Z. gambeli* is now justly considered a distinct species by Dr. Coues, the differences between it and *Z. leucophrys* and the present bird being sufficiently definite.

That *Z. intermedia* is very closely allied to *Z. leucophrys* is obvious, but the slight distinction in the arrangement of the markings about the eye is not difficult to recognize; and by this character alone adult specimens of *Z. leucophrys* and *Z. intermedia* can be determined without hesitation.

The present bird is said to be very common between the Rocky Mountains and the Pacific coast from the Mexican frontier to the Arctic Ocean. It breeds in the north and in the higher mountain-ranges of the southern part of its range [3].

Its presence at Mazatlan is merely recorded, without comment [4].

3. **Zonotrichia pileata.**

Emberiza pileata, Bodd. Tabl. Pl. Enl. p. 23 [1].

Zonotrichia pileata, Scl. P. Z. S. 1858, pp. 454 [2], 552 [3]; 1859, p. 140 [4]; 1860, p. 76 [5]; Scl. & Salv. Ibis, 1859, p. 18 [6]; P. Z. S. 1879, pp. 507 [7], 606 [8]; Cab. J. f. Orn. 1860, p. 411 [9]; Lawr. Ann. Lyc. N. Y. ix. p. 103 [10]; Frantz. J. f. Orn. 1869, p. 301 [11]; Salv. P. Z. S. 1870, p. 190 [12]; Cat. Strickl. Coll. p. 230 [13]; Ibis, 1885, p. 216 [14]; Wyatt, Ibis, 1871, p. 328 [15]; Salv. & Godm. Ibis, 1879, p. 200 [16]; 1880, p. 122 [17]; Tacz. Orn. Pér. iii. p. 45 [18].

Supra brunnescens, uropygio immaculato, dorso medio nigro striato, alis et cauda fusco-nigricantibus brunne

limbatis, illis albo bifasciatis, capite nigro, vertice medio et superciliis latis cinereis, auricularibus grisescentibus, cervicis lateribus et nucha castaneis; subtus gula et abdomine medio albis, pectore nigro; rostro fusco, pedibus corylinis. Long. tota 5·2, alæ 2·6, caudæ 2·5, rostri a rictu 0·6, tarsi 0·8. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

♀ mari similis. Av. juv. capite summo et corpore toto subtus fusco guttatis. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. Guatemala (*Constancia* [13]), Guatemala city, Antiqua [6], Dueñas [6], Quezaltenango and whole Altos of Guatemala to 7000 and 10,000 feet, Coban (*O. S. & F. D. G.*); Costa Rica (*Hoffmann* [9], *Frantzius* [11]), San José (*Carmiol* [10]), Irazu (*Rogers*); Panama, Volcan de Chiriqui, Chitra, Calovevora, Castillo (*Arcé* [12]).—South America, highlands from Colombia [16 17] and Guiana [14] to the Argentine Republic.

Specimens of this species from all the places mentioned above agree very closely with one another; the only difference we can trace between examples from Guatemala in the north and the Argentine Republic in the south is in the black band of the chest, which in northern examples is continuous, but in southern ones broken into two patches, one on either side of the breast. These two forms seem to be connected by gradual links, and are not specifically separable.

In Patagonia a closely allied species is found in *Z. canicapilla*, in which the whole of the crown is grey, the black longitudinal stripes being absent.

In Guatemala *Z. pileata* is a very common species in the highlands, and is chiefly seen during the rainy season from May till October. It appears in April, a little before that season sets in, and may be seen about the towns and plantations, the male uttering a short simple song of a few plaintive notes. The nest is built in a low bush, and composed outwardly of strong grass stems, roots, and small twigs, and lined with horsehair. The eggs are of a pale bluish-green ground-colour, spotted or blotched with deep red.

Dr. von Frantzius also found this bird breeding in his garden in Costa Rica at the commencement of the rains in April [11].

In Peru *Z. pileata* is found to breed in the mountains during the months of February, March, April, and May [18]. Durnford noticed it breeding abundantly in the neighbourhood of Buenos Ayres in October.

During the dry season in Guatemala, from October to April, less is seen or heard of *Z. pileata*; but it was noticed by Salvin near Quezaltenango in the months of January and February 1874. It would therefore appear to be a resident species in Guatemala, or only performing a limited migration between places not far removed.

4. **Zonotrichia vulcani.** (Tab. XXVI. fig. 2.)

Zonotrichia vulcani, Boucard, P. Z. S. 1878, p. 57, t. 4 [1].

Junco vulcani, Ridgw. Proc. U. S. Nat. Mus. i. p. 255 [2].

Supra fusca, dorso medio nigro guttato, alis et cauda nigricantibus fusco limbatis; capite obscure cinereo, loris et oculorum ambitu nigris, subtus sordide cinerea, abdomine vix pallidiore, crisso fusco variegato; rostro et

pedibus rufescentibus. Long. tota 6·7, alæ 3·0, caudæ 3·0, rostri a rictu 0·6, tarsi 0·95. (Descr. maris exempl. typ. ex Volcan de Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica, Volcan de Cartago (*Boucard* [1], *Zeledon* [2]).

This somewhat abnormal *Zonotrichia* was removed from this genus and placed in *Junco* by Mr. Ridgway, chiefly on account of the colour of the irides, which are yellow, as in *J. cinereus* and its allies [2]. No species of *Junco* has a spotted back in the adult nor a tail of uniform colour; and we think it best to leave it where M. Boucard placed it in *Zonotrichia*.

This interesting species was found by M. Boucard in the upper part of the Volcan de Irazu at an altitude of about 10,000 feet; that is above the upland forests and in the grassy alpine region. M. Boucard obtained several specimens, but he gives us no information as to its habits. These upland tracts are always difficult of access owing to the scarcity of water and absence of shelter.

Mr. Ridgway tells us that his correspondent, M. Zeledon, first obtained examples of this species in 1873, but the specimens were lost in transit to Washington, and before others were secured M. Boucard's expedition intervened [2].

JUNCO.

Junco, Wagler, Isis, 1831, p. 526; Baird, Brew., & Ridgw. N. Am. B. i. p. 578; Coues, Key N. Am. B. ed. 2, p. 377.

The members of few genera of Fringillidæ have received more varied treatment of late years at the hands of American ornithologists than *Junco*. The authors of the 'History of North-American Birds' admit four species of full rank, and two "varieties," several other forms being put down as hybrids. Dr. Coues, in his latest work, leaving out the Guatemalan *J. alticola* as outside his subject, treats of eight races, all of *J. hiemalis*, and explains how in his opinion the characters of each are blended, so that even the most distinct forms, such as *J. hiemalis* and *J. cinereus*, are not really separable.

So far as concerns the birds found within our region, we are not called upon to follow up this subject, for the two species we have to deal with, *J. cinereus* and *J. alticola*, are quite definable.

The true *J. cinereus* is said not to occur beyond the limits of Mexico, though in Arizona two races, very closely related, are found. *J. alticola*, on the other hand, is strictly confined to the highlands of Guatemala, and is separated in its range from *J. cinereus* by a wide interval of comparatively low country at the Isthmus of Tehuantepec.

In North America *Junco*, in one or other of its forms, is found over a wide area, from the Arctic regions to the Mexican frontier.

The bill of *J. cinereus* is conical, gradually tapering to the point, the maxilla being nowhere turgid; the tomia from the angle and the culmen are nearly straight; the

nostril is below a membrane which covers the upper part of the nasal fossa. The tarsus and the middle toe, with its claw, are subequal; the lateral toes subequal. The wings are long, the second and third quills forming the point; the first equals the fourth, and the secondaries are short, the inner ones decreasing in length, and all of them shorter than the shorter primaries. The tail is about the same length as the wings, and somewhat rounded. The plumage of the adult is destitute of spots both above and below, and the outer tail-feathers are more or less white on both webs. The young are thickly spotted everywhere.

1. Junco cinereus.

Fringilla cinerea, Sw. Phil. Mag. new ser. i. p. 435 [1].

Junco cinereus, Bp. Consp. Av. i. p. 486 [2]; Cab. Mus. Hein. i. p. 134 [3]; Scl. P. Z. S. 1856, p. 306 [4]; 1858, p. 304 [5]; 1859, p. 365 [6]; 1864, p. 174 [7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [8]; Dugès, La Nat. i. p. 140 [9]; Salv. Cat. Strickl. Coll. p. 232 [10]; Ridgw. Auk, 1885, p. 363 [11].

Junco phæonotus, Wagl. Isis, 1831, p. 526 [12].

Niphæa rufidorsis, Licht. Nomencl. p. 43 [13].

Supra cinereus, interscapulis, secundariis extus et tectricibus alarum majoribus læte rufis, alis et cauda nigricantibus illis extus cinereo limbatis, hujus rectricibus utrinque tribus externis albo decrescente terminatis, externa utrinque fere omnino alba, loris et capitis lateribus nigricantibus; subtus pallide griseus; rostri maxilla nigricante cornea, mandibula flavicante, pedibus pallide corylinis. Long. tota 5·75, alæ 3·1, caudæ 2·8, rostri a rictu 0·5, tarsi 0·85. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Av. juv. undique nigricante maculato.

Hab. Mexico (*Mann* [10]), Temiscaltepec (*Bullock* [1]), Guanajuato (*Dugès* [9]), valley of Mexico (*White* [7]), Alpine region of Vera Cruz (*Sumichrast* [8]), El Jacale (*Sallé*), Jalapa (*de Oca* [6]), La Parada (*Boucard* [5]), Popocatepetl (*de Saussure*).

Junco cinereus was described by Swainson from Bullock's specimens in 1827, and since then the bird has been met with by most collectors who have worked in the highlands of Mexico. Sumichrast speaks of it as one of the most characteristic species of the alpine region, being found in the mountains as high as 11,500 feet above the sea, but not descending below 6500 feet. Its common name, he adds, "Echa-lumbre," signifies lightning-bird, because the popular belief is that its eyes are phosphorescent in the dark [8].

Mr. Ridgway, in a recently-published paper [11], divides *J. cinereus* into three races: the present bird, *J. c. dorsalis* of New Mexico and Arizona, and *J. c. palliatus* from Mount Graham, Arizona. The latter bird only differs from *J. cinereus* in the shade of the grey of the upper parts of the head and neck and the intensity of the black of the lores. In *J. c. dorsalis* the outer surface of the wing is ashy grey instead of rufous. In his remarks Mr. Ridgway says that intermediate examples between *J. dorsalis* and *J. palliatus* occur, but that the connecting links between these forms and the true

J. cinereus remain to be discovered. These must be looked for in the wide extent of unexplored country of Northern Mexico.

2. **Junco alticola.** (Tab. XXVI. fig. 1.)

Junco alticola, Salv. P. Z. S. 1863, p. 189[1]; Ibis, 1866, p. 193[2].
Junco cinereus, var. *alticola,* Ridgw. N. Am. B. i. p. 580[3].

Cinereus, regioni oculari, pileo et nucha obscurioribus; ventre medio albicante; hypochondriis, crisso et uropygio brunnescentioribus; alis fusco-nigris, remigibus medialiter extus cinereo limbatis, interscapulio et secundariis extus rufescente-brunneis; cauda fusco-nigra, rectricibus duabus utrinque externis macula alba ad apicem notatis; rostro nigro, mandibula ad apicem albida. Long. tota 6·25, alæ 3·1, caudæ 3. (Descr. exempl. typ. ex Volcan de Fuego. Mus. nostr.)

Av. juv. supra obscure brunnea fusco indistincte maculata, subtus sordide alba pectore et hypochondriis pallide fuscis undique fusco guttatis.

Hab. GUATEMALA, Volcan de Fuego 10,000 to 12,000 feet, Volcan de Agua 10,000 to 12,000 feet, Altos, Quezaltenango, Totonicapam, &c. (*O. S. & F. D. G.*[1 2]).

This species is restricted to the higher districts of Guatemala, and is probably not found at an elevation of less than 8000 or 9000 feet above the sea. On emerging from the forest-belt of the lofty volcanoes of Agua and Fuego, which ceases at an elevation of about 10,000 feet, and gives place to grassy slopes with scattered pines, one of the first birds that is met with is *Junco alticola.* Here it is not uncommon, flying about from bush to bush in company with such birds as *Dendræca occidentalis*, *Turdus rufitorques*, and *Troglodytes brunneicollis.* This bird was first discovered by us in the Volcan de Fuego in November 1861, and we afterwards met with it on the upper slopes of the Volcan de Agua and about the open upland country of the Altos of Guatemala near the towns of Quezaltenango and Totonicapam.

J. alticola has been treated by American writers as a variety or race of *J. cinereus*, as if it were an imperfectly segregated form [3]. This position for it cannot, we believe, be maintained. Not only are the two birds distinguishable in all stages of plumage, but their highland domicile gives each an isolated habitat, so that there is no suitable intermediate district where the necessary intermediate forms may be found. No doubt the relationship between *J. cinereus* and *J. alticola* is obvious, but nevertheless their segregation is complete.

CHONDESTES.

Chondestes, Swainson, Phil. Mag. n. ser. i. 435 (1827); Baird, Brew., & Ridgw. N. Am. B. i. p. 562; Coues, Key N. Am. B. ed. 2, p. 384.

This genus contains two closely allied forms, one of which, *C. strigatus*, occurs within our limits. The bill is much like that of *Zonotrichia*, conical, and slightly tumid towards the nostrils. The wings are long, the first primary nearly equalling the second and third, which are subequal; the longest of the inner secondaries slightly exceed the

outer ones. The tail is shorter than the wings, and much rounded. The tarsus and middle toe, with its claw, are subequal, and the lateral toes are equal but short. The general colour of the plumage is striated above, the head strongly marked with elongated stripes of black and white; there is an isolated black spot on the chest, as in some species of *Pyrgisoma*, and the white tips to the tail-feathers extend to all the rectrices except the middle pair.

1. Chondestes strigatus.

Chondestes strigatus, Sw. Phil. Mag. n. ser. i. p. 435 [1].

Chondestes grammaca, Baird, Mex. Bound. Surv. ii., Birds, p. 15 [2]; Scl. P. Z. S. 1859, p. 379 [3]; 1864, p. 174 [4]; Dresser, Ibis, 1865, p. 488 [5]; Dugès, La Nat. i. p. 140 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [7]; Baird, Brew., & Ridgw. N. Am. B. i. p. 562 [8] (partim); Lawr. Bull. U. S. Nat. Mus. no. 4, p. 22 [9]; Mem. Bost. Soc. N. H. ii. p. 278 [10]; Sennett, Bull. U. S. Geol. Surv. iv. p. 19 [11]; v. 391 [12].

Chondestes grammica, Coues, Key N. Am. B. ed. 2, p. 384 [13] (partim).

Chondestes grammica strigata, Ridgw. Pr. U. S. Nat. Mus. iii. p. 217 [14]; Belding, Pr. U. S. Nat. Mus. vi. p. 343 [15].

Capite summo castaneo ad frontem nigro, superciliis et stria verticali sordide albis, corpore reliquo supra fusco, interscapulio nigro striato, alis et cauda nigricantibus fusco limbatis, illis sordide albo bifasciatis, remigibus ad basin quoque albidis, hujus rectricibus omnibus (præter duas medianas) albo plus minusve terminatis; stria per oculos nigra, regione parotica castanea infra albo marginata, parte antica nigra, macula lunulata sub oculos alba; subtus albus, stria utrinque rictali elongata et macula pectorali nigris, cervicis lateribus et hypochondriis fusco lavatis; rostro corneo, mandibula pallida; pedibus carneis. Long. tota 6·0, alæ 3·5, caudæ 2·75, rostri a rictu 0·5, tarsi 0·8. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

Hab. North America, from Iowa and Illinois to the Pacific [8 13], Texas [5 11 12].—Mexico, Nuevo Leon (*Couch* [2]), Guaymas (*Belding* [15]), Mazatlan (*Grayson* [10]), plains of Colima (*Xantus* [10]), Guanajuato (*Duges* [6]), valley of Mexico (*White* [4]), Temiscaltepec (*Bullock* [16]), State of Vera Cruz (*Sumichrast* [7]), Puebla (*Mus. Brit.*), Oaxaca (*Boucard* [3]), Chihuitan, Santa Efigenia (*Sumichrast* [9]); Guatemala, Barranco Hondo (*O. S.*).

Swainson described Mexican specimens of this species as *Chondestes strigatus*, but in a footnote to his paper he alludes to *Fringilla grammaca* as belonging to the same group [1]. Subsequent writers have considered both names applicable to the same species, *C. grammaca*, until Mr. Ridgway, in 1880, stated that he could detect constant differences between birds from eastern and western America, and that the Mexican bird agreeing with the western that race might bear the name *Chondestes grammica strigata* [14]. Unfortunately he does not state what these differences consist of. Moreover, Dr. Coues, writing in 1884, omits all mention of *C. g. strigata* [13]. Compared with an adult bird from Illinois, the true *C. grammaca*, Mexican specimens differ in having a larger bill, the sides of the crown more rufous, the back less densely striated, each streak being narrower, and the fawn-coloured edging of the wings broader. According to our view,

C. strigatus has a very extensive range, embracing a large portion of the United States, from the western Canadian frontier southwards; thence it passes into Mexico and onwards to Guatemala, whence we have a single specimen, shot 22nd October, 1873, on the slopes of the mountain range between the volcanoes of Agua and Fuego, at an elevation of about 4000 feet above the sea.

Though this species breeds in Texas we have no evidence that it is otherwise than a migratory bird in Mexico, and as such it is included by Sumichrast amongst the birds of Vera Cruz [7]. Grayson, moreover, states that it arrives in September, and departs in April [10].

The song of the male is spoken of in high praise by American writers [8]. The nest of *C. grammaca* is a shallow structure placed on the ground, and composed entirely of grasses, sedges, &c. The eggs are usually greyish white, sometimes light brown, marbled and streaked with waving lines of black or blackish brown [8].

SPIZELLA.

Spizella, Bonaparte, Saggio di una Distr. Met. An. Vert. p. 140 (Aggiunte, 1832) (type *Fringilla pusilla*, Wils.); Baird, Brew. & Ridgw. N. Am. B. ii. p. 1; Coues, Key N. Am. Birds, ed. 2, p. 379.

This genus contains six or seven more or less distinct northern species, none of which are found beyond the limits of Guatemala, where a close ally of the well-known *S. socialis* alone is found. Four other species occur in Mexico: of these *S. socialis* and *S. atrigularis* are said to be residents; *S. pallida* and its close western ally *S. breweri* are probably migrants spending the winter season in Mexico.

Two other northern species, *S. monticola* and *S. pusilla*, have not yet been noticed within our borders, nor have we any tidings of *S. wortheni*, recently described by Mr. Ridgway.

The species of this genus are of small size, measuring in total length 5 to 6 inches, the tail is long and slightly forked, the wings rather pointed. The middle of the back is streaked, and the under parts plain in the adult, but streaked in the young in first plumage; the bill is small and conical; the tarsus is about equal to the middle toe and claw, the lateral toes being subequal.

Spizella is so closely related to *Zonotrichia*, *Poospiza*, *Junco*, and *Chondestes*, that its definition is not easily expressed. It may be recognized by its long wings and tail, the latter being decidedly forked, and without white on the lateral feathers; the under plumage is plain without streaks, the middle back on the contrary being striped. These characters taken together are not found in any of the above-mentioned genera.

The bill is constructed very like that of many of the Old World Buntings to which section of the Fringillidæ *Spizella* doubtless belongs.

1. Spizella socialis.

Fringilla socialis, Wils. Am. Orn. ii. p. 127, t. 16. f. 5 [1]; Sw. Phil. Mag. n. ser. i. p. 435 [2].

Spizella socialis, Scl. P. Z. S. 1858, p. 304 [3]; 1859, p. 365 [4]; 1864, p. 174 [5]; Dresser, Ibis, 1865, p. 489 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [7]; Baird, Brew.,& Ridgw. N. Am. B. ii. p. 7 [8]; Gundl. Av. Cab. p. 90 [9]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 21 [10]; Sennett, Bull. U. S. Geol. Surv. iv. p. 19 [11]; v. p. 391 [12].

Spinites socialis, Cab. Mus. Hein. i. p. 133 [13].

Spizella socialis var. *arizonæ*, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 21 [14].

Spizella domestica, Coues, Key N. Am. B. ed. 2, p. 380 [15] (ex Bartram).

Supra, cervice postica, dorso medio et scapularibus rufo-brunneis nigro late striatis, uropygio cinereo, capite summo castaneo, fronte nigra macula mediana cinerea, stria a naribus supra oculos ad nucham ducta alba, loris et stria post oculos nigris, capitis laterum reliquo et corpore subtus cinereis, gula et abdomine albicantibus; alis et cauda fusco-nigricantibus, illis pallide fusco limbatis et albido bifasciatis; rostro tempore æstivo nigro, pedibus carneis. Long. tota 5·0, alæ 2·9, caudæ 2·3, rostri a rictu 0·5, tarsi 0·6. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Av. jun. capite summo sicut dorso striato haud castaneo.

Av. juv. subtus quoque striatus.

Hab. North America, eastern portions, Texas [6 11 12].—Mexico, Real del Monte, Temiscaltepec (*Bullock* [2]), Ciudad in Durango (*Forrer*), valley of Mexico (*White* [5]), temperate region of Vera Cruz (*Sumichrast* [7]), Jalapa (*de Oca* [4]), La Parada (*Boucard* [3]), Guichicovi [14], Gineta Mountains [10] (*Sumichrast*).—Cuba [9].

A widely ranging species, resident in Mexico according to Sumichrast, who says that it remains throughout the year in the temperate region of Vera Cruz, where it breeds as freely as in the United States [7].

A separate race has been recognized by American authors as inhabiting Arizona, under the name of *Spizella socialis arizonæ*. This bird we should expect to find in the Sierras of Durango and in Western Mexico, but we fail to detect any differences between our examples from those parts and others from the Eastern States. Moreover, a specimen from Arizona seems to us to be the same in every way, having the chestnut head of the true *S. socialis*. Our series, however, of this western race is hardly good enough to enable us to speak very positively, but, so far as it goes, tends to show that *S. socialis arizonæ* will prove inseparable from *S. socialis* itself. The name was based upon young birds, the striated heads of which had not given place to the chestnut crown of the adult.

Though apparently a common species in Mexico, next to nothing has been written of *S. socialis* beyond a record of the localities where it has been observed, and these extend over a large portion of that country, as far south as the mountains of the isthmus of Tehuantepec, where, according to Mr. Lawrence, specimens of both the common and the Arizona race were obtained by Sumichrast in the months of September and January.

In Cuba it has only once been noticed, Dr. Gundlach having shot a female specimen

in some marshy ground near the sea. This bird was determined by Mr. Lawrence, to whom it was sent for that purpose [9].

In the United States *S. socialis* is one of the most familiar species, being extremely abundant about houses, &c. [15], and building in shrubberies, making a rough nest of coarse stems of grasses and other plants with a lining of hair. The eggs, five in number, are of a bluish-green colour, sparingly spotted towards the larger end with marks of umber, purple, and dark blackish brown mingled with lighter shadings of purple; they are said to vary greatly in size [8].

Mr. Brewster has given a description of the young in the first plumage, in his valuable paper on the first plumage in various species of North American birds (Bull. Nutt. Orn. Club, iii. p. 121.)

2. **Spizella pinetorum.** (Tab. XXVII. fig 3.)

Spizella pinetorum, Salv. P. Z. S. 1863, p. 189 [1]; Ibis, 1866, p. 193 [2]; Ridgw. Ibis, 1884, p. 44 [3].

S. sociali affinis sed supra multo obscurior, capite summo saturate castaneo nec clare rufo distinguenda; rostro corneo, mandibula pallida, pedibus carneis. Long. tota 5·3, alæ 2·7, caudæ 2·4, rostri a rictu 0·4, tarsi 0·65. (Descr. exempl. typ. ex Poctun, Guatemala. Mus. nostr.)

Av. jun. capite summo sicut dorso striato.

Hab. GUATEMALA, pine-ridges of Poctun (*O. S.*[1 2]), Vera Paz (*Hague*).

In our original description of this species we compared it with *S. pusilla*, but its affinities, as Mr. Ridgway has since pointed out [3], are certainly with *S. socialis*. A single specimen only was obtained by Salvin during his expedition to Peten in 1863. It was shot amongst tall grass growing in a savanna near the village of Poctun in the department of Peten. Our second specimen of this species was sent us from Vera Paz by Mr. Henry Hague. It is not so mature as the type, the head having streaks on the crown, as is the case in immature birds of the allied species *S. socialis*.

3. **Spizella pallida.**

Emberiza pallida, Sw. Faun. Bor.-Am. ii. p. 251 [1].

Spizella pallida, Bp. Consp. Av. i. p. 480 [2]; Baird, Mex. Bound. Surv. ii., Birds, p. 16 [3]; Scl. P. Z. S. 1859, p. 379 [4]; Dresser, Ibis, 1865, p. 489 [5]; Dugès, La Nat. i. p. 140 [6]; Baird, Brew., & Ridgw. ii. p. 11 [7]; Sennett, Bull. U. S. Geol. Surv. iv. p. 19 [8]; Coues, Key N. Am. B. ed. 2, p. 381 [9].

Fringilla pusio, Licht. Preis-Verz. Mex. Vög. p. 2; cf. J. f. O. 1863, p. 56 [10].

Supra pallide fusca, undique nigricante striata, fascia verticali pallida; alis et cauda nigricantibus pallide fusco limbatis, illis albido bifasciatis; capitis lateribus, cervice laterali et hypochondriis fuscis, superciliis latis sordide albis, corpore toto reliquo subtus albido; rostro pallide corneo, pedibus carneis. Long. tota 5·2, alæ 2·4, caudæ 2·5, rostri a rictu 0·43, tarsi 0·65. (Descr. feminæ ex Puebla, Mexico, Jan. 1866. Mus. nostr.)

Hab. NORTH AMERICA, British America, Central U. S., Texas [5 7 8 9].—MEXICO [2] (*Deppe* [10]), Tamaulipas (*Couch* [3]), Guanajuato (*Dugès* [6]), Oaxaca (*Boucard* [4]).

A common species throughout the central portion of North America, from the Saskatchewan, where it was discovered by Richardson, southwards through Texas, to the highlands of Southern Mexico, its place being taken in the Western and South-western States, as well as in North-western Mexico, by the closely allied *S. breweri.*

The Mexican specimens we have seen all seem to be in winter plumage, and it is most probable that the bird is present in Mexico only in the winter season, and that it migrates thence northwards in spring to its breeding-quarters. Of its occurrence within our territory we have nothing but the bare record of localities.

The nesting-habits of *S. pallida* are described in the 'History of North American Birds'[7]. The nest is placed in a tree or shrub, two or three feet from the ground, sometimes more, and is loosely made of grasses, and lined with hair. The eggs are light blue tinged with green and marked round the larger end with spots and blotches of purplish brown.

4. Spizella breweri.

Spizella breweri, Cass. Pr. Ac. Phil. 1856, p. 40[1]; Baird, Mex. Bound. Surv. ii., Birds, p. 16[2]; Belding, Pr. U. S. Nat. Mus. vi. p. 343[3]; Coues, Key N. Am. B. ed. 2, p. 381[4].

Spizella pallida var. *breweri,* Baird, Brew., & Ridgw. N. Am. B. ii. p. 13[5].

S. pallidæ similis, sed striis corporis supra angustioribus, iis capitis summi undique dispersis, vitta mediana pallida nulla.

Hab. North America, S.W. States, New Mexico[1], Arizona[4 5].—Mexico, Boca Grande (*Kennerly*[2]), Guaymas (*Belding*[5]), Ciudad in Durango (*Forrer*).

A specimen sent us by Mr. Forrer from the State of Durango certainly belongs to this race of *S. pallida,* and the bird has also been noticed within our fauna by Kennerly at Boca Grande, and by Mr. Belding at Guaymas.

The characters by which *S. breweri* is distinguished from *S. pallida* seem to be fairly definite, the uniform striation of the crown at once rendering it easily recognized. In *S. pallida* the crown has dark sides where the striations are concentrated, leaving a light central streak which passes from the forehead to the nape.

Nothing is recorded of *S. breweri* in Mexico beyond localities where it has been found. In the States it is familiar to most of the ornithologists who have worked between the Rocky Mountains and the Pacific Ocean, in California, and southwards through Colorado, New Mexico, and Arizona. Mr. Ridgway, who observed it in numbers at Sacramento and elsewhere, speaks highly of its powers of song, which he says fully equal those of the Canary. The eggs are described as marked and blotched with scattered markings of a golden-brown colour, these blotches being larger and more conspicuous than in the eggs of any other allied species[5].

5. **Spizella atrigularis.**

Spinites atrigularis, Cab. Mus. Hein. i. p. 133[1].

Spizella atrigularis, Baird, Mex. Bound. Surv. ii., Birds, p. 16, t. 17. f. 1[2]; Dugès, La Nat. i. p. 140[3]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 15[4]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 21[5]; Coues, Key N. Am. B. ed. 2, p. 381[6].

Cinerea, dorso medio rufo nigro striato, alis et cauda nigricantibus, illis rufo limbatis; subtus dilutior, ventre imo albicante, gula nigra; rostro rubido, pedibus obscure corylinis. Long. tota 5·4, alæ 2·7, caudæ 3·0, rostri a rictu 0·4, tarsi 0·75. (Descr. exempl. ex Mexico. Mus. nostr.)

♀ aut *av. juv.* gula et abdomine concoloribus.

Hab. North America, Lower California, Arizona [4 6].—Mexico [1], Agua Nueva in Coahuila (*Couch* [2]), Guanajuato (*Dugès* [3]), Chapulco (*Sumichrast* [5]).

Though this well-marked species has a wide range in Mexico, it seems to be nowhere common, and specimens, though not unfrequently to be found in Mexican collections, are never numerous. Concerning its habits in Mexico not a word has been recorded. In Arizona Dr. Coues met with it sparingly near Fort Whipple from April to October. In the spring the male utters a pleasing song, and towards autumn birds collect into small flocks and frequent weedy places, associating with the western *Spizella socialis* and Goldfinches (*Chrysomitris*). The nest and eggs of this species remain to be discovered.

PASSERCULUS.

Passerculus, Bonaparte, Comp. List Birds, p. 33 (1838); Baird, Brew., & Ridgw. N. Am. B. i. p. 532; Coues, Key N. Am. B. ed. 2, p. 360.

This genus consists of about six species all inhabitants of the continent of North America, two of them entering our country, *P. sandwichensis* as far south as Guatemala and *P. rostratus* only along the eastern shore of the Gulf of California. The definition of *Passerculus* is not very pronounced, but the shortness of the tail as compared to the length of the wing renders it recognizable from *Peucæa* and other allied genera. The plumage is more or less spotted above and below, and the chest and flanks are distinctly maculate. The bill is usually rather slender though more turgid in *P. rostratus*; the culmen, tomia, and gonys nearly straight; the nostrils are exposed, an overhanging membrane covering the upper half of the nasal fossa; the rictal bristles are strong, reaching half the length of the bill. The four outer quills of the wing are nearly equal and the secondaries are of nearly the same length; the tail is very slightly forked and the feathers rather narrow; the middle toe is shorter than the tarsus, but the toes and claws are rather stout.

1. **Passerculus sandwichensis.**

Emberiza sandwichensis, Gm. Syst. Nat. i. p. 875[1].

Passerculus savanna, var. *sandwichensis,* Baird, Brew. & Ridgw. N. Am. B. i. p. 538[2].

Fringilla savanna, Wils. Am. Orn. iii. p. 55, t. 22. f. 3[3].

Passerculus savanna, Cab. Mus. Hein. i. p. 131 [4]; Baird, Brew., & Ridgw. N. Am. B. i. p. 534 [5]; Sennett, Bull. U. S. Geol. Surv. v. p. 390 [6].

Passerculus alaudinus, Bp. Compt. Rend. xxxvii. p. 918 [7]; Baird, Mex. Bound. Surv. ii., Birds, p. 15 [8]; Scl. P. Z. S. 1858, p. 303 [9]; Scl. & Salv. Ibis, 1860, p. 398 [10]; Dresser, Ibis, 1865, p. 487 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [12].

Passerculus savanna var. *alaudinus* Baird, Brew., & Ridgw. N. Am. B. i. p. 537 [13]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 21 [14].

Passerculus sandvicensis alaudinus, Coues, Key N. Am. B. ed. 2, p. 363 [15].

Supra fuscus, plumis singulis medialiter nigris, vertice medio fere immaculato, superciliis a naribus pallide flavidis, stria per oculos indistincte nigra; alis et cauda fusco-nigris pallide fusco limbatis; subtus albus, cervicis lateribus, pectore et hypochondriis nigro guttulatis; rostro corneo, mandibula pallida, pedibus carneis. Long. tota 5·0, alæ 2·8, caudæ 2·1, rostri a rictu 0·5, tarsi 0·75. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America generally [2 5 13], Texas [6 11].—Mexico [4], Tamaulipas (*Couch* [8]), Vera Cruz (*Sumichrast* [12]), La Parada (*Boucard* [9]), Tehuantepec city (*Sumichrast* [14]); Guatemala, Dueñas [10], Coban, Peten, Retalhuleu (*O. S. & F. D. G.*).

The North American specimens of this Finch were at one time divided into several species which have since been reduced to races, and these again, so far as we can see, should be merged into one variable form, at least so far as *P. sandwichensis* is concerned and its immediate forms *P. savanna* and *P. alaudinus*. *P. anthinus* of the coast of California, with its darker back and more heavily spotted breast, we think, may prove to be distinct, but our materials are not sufficient to form a definite opinion, and the question does not immediately concern the present work. *P. rostratus* and *P. princeps* appear to be quite distinct.

The characters by which the races of *P. sandwichensis* have been divided are almost wholly of size, strength of bill, and length of wing, but their dimensions overlap. The wing of a specimen from Guatemala is as long as another from Onalaska though the bill is much smaller. Moreover there seems to be no portion of the continent of North America unoccupied by this Sparrow, and the evidence that its varied forms blend into one another by insensible steps seems complete. We note, however, that the birds of the Western and Middle States and those of Mexico have, on an average, smaller, more delicate bills than those of the Eastern States, and still more than those of the high north, the true *P. sandwichensis*.

Though apparently resident in Texas, Mr. Sennett having observed it as late as May at Lomita in the Rio Grande valley [6], it seems it is doubtful whether it is more than a winter visitor to Mexico and Guatemala; Sumichrast [12] gives it as such in the State of Vera Cruz, and other authorities record its presence between the months of November and March. It is apparently absent from Western Mexico until we reach the State of Oaxaca and the Isthmus of Tehuantepec; in Guatemala it is pretty generally distributed but nowhere numerous, frequenting low shrubs on the banks of streams and lakes.

The nest is described [5] as always sunk in the ground and loosely constructed of dry

grasses with a lining of softer material. The eggs are five or six in number and vary considerably; in some the ground colour is greenish white with blotches of various shades of brown, red, and purple; these blotches are more numerous about the larger end, where they form a ring; in others the spots are so numerous as to hide the ground colour.

2. **Passerculus rostratus.**

Emberiza rostrata, Cassin, Pr. Ac. Phil. 1852, p. 184[1].

Ammodromus rostratus, Cassin, Ill. B. Calif. & Texas, p. 226, t. 38[2].

Passerculus rostratus, Baird, Brew., & Ridgw. N. Am. B. i. p. 542[3]; Ridgw. Pr. U.S. Nat. Mus. v. p. 537[4]; Belding, Pr. U. S. Nat. Mus. vi. p. 343[5].

Supra griseo-fuscus fere unicolor, striis obscuris fere absconditis; capite summo vix striato, alis et cauda fusco-nigris rufescente fusco limbatis; superciliis sordide albis, stria rictali fusca; subtus albidus, gutture, pectore et hypochondriis guttulatis; rostro robusto corneo, mandibula pallida, pedibus corylinis. Long. tota 4·8, alæ 2·7, caudæ 2·0, rostri a rictu 0·55, tarsi 0·85. (Descr. maris ex Guaymas, Mexico. Smiths. Inst. no. 89910.)

♀ mari omnino similis.

Hab. North America, coast of California [1 2] to Cape S. Lucas [3 4].—Mexico, Guaymas (*Belding* [5]).

This species can readily be separated from *P. sandwichensis* by its very stout bill, more arched culmen, the absence of a vertical median stripe, the obsolete streaks of the back, which is nearly of a uniform colour, and the white superciliary streak with no yellow in the anterior portion.

P. rostratus appears to be restricted in its range to the coast of California and the shores of the Gulf of that name, and it is included in our Fauna from specimens having been obtained by Mr. L. Belding at Guaymas [5]. It was first discovered by Dr. Heermann near San Diego, on the coast of California [1], where it frequented the sedge-grass near the sea-beach, feeding on seeds, &c., thrown up by the waves. Other observers have noticed it in similar situations. Of its breeding-habits nothing has been recorded so far as we know. Mr. Ridgway has carefully tabulated the measurements of a series of specimens of *P. rostratus* from Lower California, with a view to ascertain the status of the allied forms *P. guttatus* and *P. sanctorum*; the result shows that both of these birds are probably inseparable from *P. rostratus* [4].

POŒCETES.

Poocætes, Baird, Birds N. Am. p. 447 (1858); Baird, Brew., & Ridgw. N. Am. Birds, i. p. 544.
Poœcetes, Coues, Key N. Am. B. ed. 2, p. 364.

This genus is very closely allied to *Passerculus*, from which it differs in the wings being longer in proportion to the tail, the primaries considerably exceeding the secondaries in length. The claw of the hind toe is rather shorter than in *Passerculus*, the

lateral toes nearly equal to the middle toe without its claw, instead of shorter, and the lateral tail-feathers outwardly white.

P. grammineus is the only species of the genus which is widely distributed throughout the United States, and is found in the uplands of Mexico during the winter months.

1. Poœcetes gramineus.

Fringilla graminea, Gm. Syst. Nat. i. p. 922 [1].

Poœcetes gramineus, Baird, Mex. Bound. Surv. ii. p. 15 [2]; Scl. P. Z. S. 1859, p. 379 [3]; Dresser, Ibis, 1865, p. 487 [4]; Dugès, La Nat. i. p. 140 [5].

Poœcetes gramineus var. *confinis*, Baird, Brew., & Ridgw. N. Am. B. i. p. 545 [6]; Sennett, Bull. U. S. Geol. Surv. iv. p. 17 [7].

Supra schistaceo-fuscus, pluma singula stria fusco-nigra brunneo limbata medialiter notata, vertice et cervice postica sicut dorso striata sed striis angustioribus, loris et ciliis albicantibus; alis et cauda fusco-nigris griseo-fusco limbatis, illis albido indistincte bifasciatis, tectricibus minoribus castaneis, hujus rectricibus duabus utrinque externis albis, extima pro majore parte; rostro corneo, mandibula pallida, pedibus carneis. Long. tota 6·0, alæ 3·4, caudæ 2·7, tarsi 0·85, dig. med. cum ungue 0·85. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

Hab. North America [1], United States generally, Texas [4 7]. — Mexico, Tamaulipas (*Couch* [2]), Boca Grande, Espia (*Kennerly* [2]), Guanajuato (*Dugès* [1 5]), Oaxaca (*Boucard* [3]), Jalapa (*de Oca*, *Höge*).

P. gramineus has been divided into an eastern and a western race, and it is the latter, *P. g. confinis*, which we find in Mexico. The difference is very slight between the two, and lies in the western bird being of paler greyer plumage and the black streaks narrower.

Though widely distributed in Mexico, this species has been little noticed, and seems to have escaped Sumichrast's observation, though found near Jalapa, within the district the birds of which he specially studied. So far as the records on our specimens go, it would seem that *P. gramineus* is a winter visitor to Mexico, and migrates thence northwards on the approach of the breeding-season.

In the United States *P. gramineus* is a very well-known bird, frequenting grassy country, and is a characteristic bird of the grassy slopes of the Rocky Mountains [6]. Its song is described as simple, but of sweet tone. It builds on the ground a simply constructed nest of dry grass-stems, with a lining of softer materials of the same description. The eggs are greenish white marked with spots of various sizes and lines of various shades of reddish and purplish brown [6].

COTURNICULUS.

Coturniculus, Bonaparte, Comp. List, p. 32 (1838); Baird, Brew., & Ridgw. N. Am. B. i. p. 548; Coues, Key N. Am. B. ed. 2, p. 365.

The birds usually associated in this genus are separable into two sections, one of which, *C. passerinus*, is typical, has the tail-feathers narrow with acute tips, the crown

has a vertical median stripe; the other section, represented by the South American *C. manimbe*, has the tail-feathers normal and rounded at their ends; the crown has no median stripe. Both forms are represented in our region, but only *C. passerinus* and its allies *C. lecontii* and *C. henslowi* are found in North America; but these have a wide range in the States, and *C. passerinus* is found in several of the larger West Indian Islands. Of the southern section, *C. petenicus* is its only representative in Central America; but in the southern continent *C. manimbe*, in one or other of its somewhat varied races, and *C. peruanus* are found throughout the whole of Tropical America, as far as the Argentine Republic.

The bill of *C. passerinus* is stout, the culmen curved and somewhat elevated towards the forehead; the nostrils are in a somewhat deep fossa, the upper part of which is occupied by a membrane; the tomia is rather concave, and beneath the nostrils the bill is somewhat tumid; the wings are short and much rounded, the second and third quills being slightly longer than the first, fourth, and fifth; the inner secondaries fall short of the longest primaries only by one eighth of an inch; the tail is rounded and the feathers are narrow and pointed, but lax and not stiffened as in *Ammodromus*. The general plumage is mottled above and plain beneath, but in the young the chest has some faint streaks. The tail of *C. petenicus* consists of broader feathers with rounded ends. The plumage is less varied above, and there is no vertical streak.

1. Coturniculus passerinus.

Fringilla passerina, Wils. Am. Orn. iii. p. 76. t. 24. f. 5 [1].

Coturniculus passerinus, Baird, Mex. Bound. Surv. ii., Birds, p. 15 [2]; Scl. & Salv. Ibis, 1859, p. 18 [3]; Scl. P. Z. S. 1859, p. 379 [4]; Cab. J. f. Orn. 1860, p. 411 [5]; Dresser, Ibis, 1865, p. 487 [6]; Sumichrast, Mus. Bost. Soc. N. H. i. p. 552 [7]; Frantz. J. f. Orn. 1869, p. 301 [8]; Baird, Brew., & Ridgw. N. Am. B. i. p. 553 [9]; Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [10]; Bull. U. S. Nat. Mus. no. 4, p. 21 [11]; Gundl. Av. Cub. p. 90 [12]; Salv. Cat. Strickl. Coll. p. 233 [13]; Ibis, 1885, p. 190 [14]; Coues, Key N. Am. B. ed. 2, p. 365 [15].

Ammodramus bimaculatus, Sw. Phil. Mag. new ser. i. p. 435 [16].

Coturniculus tixicrus, Gosse, B. Jamaica, p. 242 [17].

Supra griseo-fuscus, dorsi plumis medialiter nigris ad apicem castaneo notatis, pilei lateribus nigris plumis cervino marginatis, pileo medio longitudinaliter cervino; superciliis sordide albidis; alis et cauda nigricantibus fusco limbatis, secundariis internis ad apices et tectricibus alarum sicut dorso notatis; subtus albus, pectore et hypochondriis cervinis, campterio alari flavo; rostro corneo, mandibula pallida, pedibus corneis. Long. tota 5, alæ 2·4, caudæ 1·9, rostri a rictu 0·5, tarsi 0·75. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. North America, Eastern States, Canada [9 15], Texas [6].—Mexico, Los Nogales (*Kennerly* [2]), Mazatlan (*Grayson* [10]), Temiscaltepec (*Bullock* [16]), State of Vera Cruz in winter (*Sumichrast* [7]), Oaxaca (*Boucard* [4]), Jalapa (*de Oca*), Tehuantepec city (*Sumichrast* [11]), Cozumel I. (*Devis* [14]); Guatemala (*Constancia* [13], *Skinner* [3]), Coban, Sakluk near Peten (*O. S. & F. D. G.*); Costa Rica, San Isidro (*v. Frantzius* [3 8]).—Cuba [12]; Jamaica [17]; Puerto Rico [9].

Mr. Ridgway has divided *Coturniculus passerinus* into two races, calling the bird of the Western Provinces, which is somewhat paler, *C. p. perpallidus* [9]. He places the Mexican and West Indian birds with the true *C. passerinus*; but one of our Mexican specimens is as pale as another, marked by Mr. Ridgway himself as *C. perpallidus*, whereas our Guatemalan examples are the darkest of our series. There can hardly be a doubt that the light and pale form blend imperceptibly, and we therefore use the term *C. passerinus* in a wide sense to embrace them both.

That *C. tixicrus* of Gosse from Jamaica is the same bird is now generally, and we think rightly, admitted; and Swainson's *A. bimaculatus* also belongs here, as the evidence of a type in the Cambridge Museum places beyond question.

In Mexico *C. passerinus* is said to be a winter visitor, and is at that season pretty generally distributed from the sea-coast near Mazatlan and Tehuantepec to the highlands of the State of Vera Cruz. In Guatemala we found it near Sakluk in an open savanna at an elevation of about 500 feet, and near Coban upwards of 4000 feet above the sea, but always in grassy meadows.

In Jamaica it is said by the late Mr. March to breed in considerable numbers [9], but in Cuba Dr. Gundlach says that it is migratory, arriving from the United States in autumn [12].

In the latter country it is a common species, but less familiar than it might be owing to its very skulking habits. It is resident in the Southern States, but elsewhere either a summer visitor or a bird of passage [15]. Its note is described as not unlike the chirp of a grasshopper [9]. It builds on the ground in a tussock of grass, the nest being made of dry grasses and lined with fine bents and horsehair. The eggs are crystal white, sprinkled with marks of reddish brown [9 15].

2. **Coturniculus petenicus.** (Tab. XXVIII. fig. 2.)

Ammodromus petenicus, Salv. P. Z. S. 1863, p. 189 [1]; Ibis, 1866, p. 193 [2].
Coturniculus (?) *petenicus*, Ridgw. Ibis, 1884, p. 44 [3].

Supra nigricans, plumis omnibus fusco limbatis, loris sordide albidis; subtus albidus, cervicis lateribus, pectore et hypochondriis pallide fuscis, stria utrinque rictali nigra, campterio alari flavido; rostro corneo, pedibus pallide corylinis. Long. tota 5·0, alæ 2·2, caudæ 2·15, rostri a rictu 0·45, tarsi 0·75. (Descr. feminæ typ. ex Poctun, Guatemala. Mus. nostr.)

Hab. GUATEMALA, Pine-ridge of Poctun near Peten (*O. S.*[1]).

The single female specimen shot by Salvin in March 1863, in the above locality, is the only one we have yet seen of this species. We have looked in vain for it in collections from Yucatan, where it may reasonably be expected to be found in the grassy savanas of that region.

The alliances of *C. petenicus* are no doubt with the South American *C. manimbe*, and Mr. Ridgway tells us that it much resembles the form of that bird called by him *C. m. dorsalis*. It lacks, however, the yellow lores, the upper plumage is darker, there

is a black line on either side of the upper part of the throat, and other slighter differences.

As Mr. Ridgway justly remarks [2], *C. petenicus* and its allies are abnormal members of either *Coturniculus* or *Ammodromus*, but we hesitate, as he did, to make a separate genus for them.

MELOSPIZA.

Melospiza, Baird, Birds N. Am. p. 476 (1858); Baird, Brew., & Ridgw. N. Am. Birds, ii. p. 16; Coues, Key N. Am. B. ed. 2, p. 369.

This genus, with *Peucæa*, forms section C of the "Spizellinæ" of Messrs. Baird, Brewer, and Ridgway's arrangement, and is distinguished by the following common characters:—The tail is lengthened and graduated (*i. e.* rounded and not forked), longer than the wings, which are very short, hardly extending when closed beyond the base of the tail. All the species are streaked above, and the tail is without white on the lateral feathers.

From *Peucæa*, *Melospiza* may be distinguished by the species being streaked beneath on the chest and flanks, the tail-feathers rather broad, and the culmen and tomia nearly straight; the claws stout, that of the hind toe being as long as its digit.

The differentiation of the species of *Melospiza* offers a very complex problem so far as regards *M. fasciata* and its races, a problem which not even the resources of the National Museum at Washington have solved to the satisfaction of all who have consulted its treasures, for those who have done so do not arrive in all cases at the same conclusion as to which forms should be considered species and which varieties. The accumulation of materials seems to render the lines of definition between the various races of this species more and more obscure, so that we may fairly expect them to become entirely obliterated as means of observation grow; or, on the other hand, that certain of these lines may prove to be still definite though faint.

So far as concerns one of the members of *Melospiza* found in Mexico, *M. heermanni*, we rather incline to the belief that it will ultimately be found separable from *M. fasciata*; but of *M. montana* we are not in a position to offer any opinion. *M. lincolni* is an isolated species offering no difficulty.

It is probable that all three forms included below are winter visitors to Mexico or Guatemala, but on this point our information leaves much to be desired.

1. Melospiza lincolni.

Fringilla lincolni, Aud. Orn. Biogr. ii. p. 539, t. 193 [1].
Peucæa lincolni, Bp. Consp. Av. i. p. 481 [2].
Passerculus lincolni, Scl. P. Z. S. 1858, p. 303 [3]; 1859, p. 365 [4]; Scl. & Salv. Ibis, 1859, p. 18 [5].
Melospiza lincolni, Baird, Mex. Bound. Surv. ii. Birds, p. 16 [6]; Scl. P. Z. S. 1859, p. 379 [7]; Dresser, Ibis, 1865, p. 489 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [9]; Baird, Brew., & Ridgw.

N. Am. B. ii. p. 31 [10]; Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [11]; Sennett, Bull. U. S. Geol. Surv. iv. p. 18 [12]; v. p. 390 [13]; Boucard, P. Z. S. 1883, p. 444 [14].

Supra schistaceo-brunnea nigricante striata, stria singula utrinque rufo plus minusve limbata, superciliis et stria verticali schistaceis; alis et cauda nigricanti-brunneis, rufo limbatis; subtus alba, gutturis lateribus, pectore et hypochondriis cervinis nigro guttulatis, gula ipsa et abdomine medio pure albis; rostro corneo, mandibula ad basin albida, pedibus pallide corylinis. Long. tota 5·0, alæ 2·3, caudæ 2·1, tarsi 0·8, dig. med. cum ungue 0·8. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. North America generally [10], Texas [8 12 13].—Mexico [2], Tamaulipas (*Couch* [6]), Mazatlan, Tepic (*Grayson* [11], *Forrer*), State of Vera Cruz (*Sumichrast* [9]), Jalapa (*de Oca* [4]), Totontepic, Teotalcingo, Oaxaca (*Boucard* [7]), Izamal (*Gaumer* [14]); Guatemala, Dueñas [5], Coban (*O. S. & F. D. G.*); Panama (*Aspinwall* [10]).

The only evidence we have of the occurrence of this species so far south as the State of Panama is the statement by Dr. Brewer to that effect [10]. We have never ourselves seen specimens from any point further south than Guatemala, where *M. lincolni* is not uncommon in marshy places during the winter months. In Mexico it is also not uncommon at that season; but Grayson, who says it is very abundant in winter in the coast-region of Western Mexico, adds that at Tepic it is found at all seasons [11]. This latter statement we think requires some confirmation, seeing how very far north or to what an altitude *M. lincolni* flies before selecting its breeding-ground. Sumichrast gives it amongst the migratory birds of the State of Vera Cruz [9].

In North America *M. lincolni* is found generally distributed at some period of the year either in its summer or winter quarters or during the spring or autumn migrations. It breeds in Labrador and in the valleys of the Yukon and Mackenzie rivers, as well as in the State of New York and in New England. Further south it is said to breed in the mountains of Colorado.

The nest is built in a tussock of grass, and the eggs are of a pale greenish-white ground, thickly marked with spots and blotches of ferruginous brown, often so thickly as to partly conceal the ground-colour [10].

2. **Melospiza montana.**

Melospiza melodia, Baird, Mex. Bound. Surv. ii. Birds, p. 16 [1].

Melospiza fasciata montana, Henshaw, Auk, 1884, p. 223 [2].

Supra cinereo-fusca, pilei lateribus rufis nigro striatis, interscapulii plumis medialiter macula nigra rufo utrinque limbata notatis, uropygio quoque guttato; alis et cauda nigricanti-brunneis extus rufo limbatis; superciliis albidis; subtus albus, cervicis lateribus, pectore, hypochondriis et crisso obscure brunneo guttatis; rostro corneo, mandibula pallida, pedibus corylinis. Long. tota 6·0, alæ 2·8, caudæ 3·0, rostri a rictu 0·55, tarsi 0·85. (Descr. exempl. ex Wyoming, Smiths. Inst. 61041. Mus. Brit.)

Hab. North America, Great Basin generally [2].—Mexico, Boca Grande (*Kennerly* [1]).

In answer to inquiries, Mr. Ridgway writes to say that the Boca Grande specimen named *Melospiza melodia* by Prof. Baird belongs to the race recently separated by Mr. Henshaw as *M. fasciata montana*. There are specimens in the British Museum

bearing this name from Wyoming. Mr. Henshaw compares his bird with *M. fallax*, itself a race of *M. fasciata*, according to the recent views of American authors; from this it differs in being umber-brown instead of bright reddish brown, giving a greyish aspect to the plumage, the back is streaked with blackish brown instead of a dark shade of red-brown, the streaks below are of the same colour as those of the back, those of *M. fallax* being reddish and not black.

The true *M. fallax* is found near Tucson in Arizona, where also *M. montana* occurs, but a point connected with their presence there seems well worthy of note. Mr. Nelson says that on March 18th *M. fallax* was in full song and preparing to breed, whereas *M. montana* had left without singing for more northern regions [2].

In the case of this bird we do not feel in a position to decide whether it is most likely to prove inseparable from *M. fasciata* owing to complete intergradation, in which case we should include it under that name, or whether it is definitely separable even by very slight characters, for then we should call it *M. montana*.

3. **Melospiza heermanni.**

Melospiza heermanni, Baird, Birds N. Am. p. 478, t. 70. f. 1 [1].
Melospiza melodia var. *heermanni*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 24 [2].
Melospiza fasciata heermanni, Coues, Key N. Am. B. ed. 2, p. 372 [3].
Melospiza gouldi, Scl. P. Z. S. 1862, p. 369 [4] (nec Baird).
Melospiza fallax, Scl. P. Z. S. 1864, p. 174 [5].
Melospiza pectoralis, v. Müll. Syst. Verz. Wirb. Mex. p. 49 [6]?
Melospiza melodia var. *mexicana*, Ridgw. N. Am. B. ii. p. 18 [7]?

Supra fusco-brunnea, dorso medio nigro late striato, capite summo quoque striato rufo intermixto, fascia verticali indistincte cinerea; alis et cauda fusco-nigris, rufo limbatis, superciliis griseo-albidis, ad naribus pure albis, loris et stria postoculari nigris, regione parotica fusco induta; subtus alba, stria utrinque lata rictali ad pectus conjunctis nigris, pectore dense, hypochondriis sparse, nigro maculatis, his cum crisso cervino lavatis; rostro nigricante corneo, mandibula ad basin pallida, pedibus pallide corylinis. Long. tota 6·2, alæ 2·8, caudæ 2·8, rostri a rictu 0·55, tarsi 0·85. (Descr. maris ex Puebla, Mexico (January). Mus. nostr.)

Hab. North America, California [1], Nevada [2].—Mexico [4], valley of Mexico (*White* [5]), Puebla [7] (*Boucard*).

We have Mexican specimens of this *Melospiza*, agreeing accurately with others from California, purporting to be the true *M. heermanni* of Baird, and with the same bird we associate the Mexican specimens called *M. gouldi* and *M. fallax* by Mr. Sclater. Regarding *M. pectoralis* of Müller we are in some doubt, as the description does not quite agree; but *M. melodia mexicana* of Ridgway [9] we place here with more confidence, as the description suits a specimen from Southern Mexico in our collection very accurately. Making some allowance for seasonal and abraded plumage, we cannot see our way to admitting more than one *Melospiza* of this form in Southern Mexico, viz. *M. heermanni*.

It is probable that this species is a winter visitor to Southern Mexico, but we have no positive evidence to prove that it is so. The bird does not appear in Sumichrast's lists.

In California, *M. heermanni* appears to be abundant, and nests were found by Dr. Cooper at Santa Cruz; one of these was placed in a willow-tree close to the stem, about three feet from the ground; it was constructed of coarse grass-stems and leaves, and lined with finer grasses and horsehair. The eggs were greenish white, spotted and blotched with purplish brown chiefly at the larger end [2].

PEUCÆA.

Peucæa, Audubon, Synopsis B. N. Am. p. 112 (1839); Scl. & Salv. P. Z. S. 1868, p. 322; Baird, Brew., & Ridgw. N. Am. B. ii. p. 37; Coues, Key N. Am. B. ed. 2, p. 373.

Peucæa may be distinguished from *Melospiza* by the plumage being destitute of spots beneath, its somewhat more curved culmen, its weaker claws, and rather narrower tail-feathers; otherwise the two so-called genera are very similar.

The species of *Peucæa* are almost as indefinite as those of *Melospiza* as regards their differential characters. We recognize four Mexican species which are easily distinguished *inter se*, but *P. botteri* is but slightly removed from *P. æstivalis* and *P. boucardi* from *P. ruficeps*. On the other hand both *P. cassini* and *P. notosticta* are definite enough.

The genus is divisible into two sections, one containing the species with no rictal stripes, but with the bend of the wing yellow; the other has rictal stripes and the wing-bend white.

a. *Sp. striga utrinque rictali nulla, campterio flavicante.*

1. Peucæa botterii.

Zonotrichia botterii, Scl. P. Z. S. 1857, p. 214 [1].
Peucæa botterii, Scl. & Salv. P. Z. S. 1868, p. 323 [2].
Peucæa æstivalis, var. *botterii*, Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [3].
Coturniculus mexicanus, Lawr. Ann. Lyc. N. Y. viii. p. 474 [4].
Peucæa cassini, Baird, Mex. Bound. Surv. ii. Birds, p. 16 [5]; Birds N. Am. p. 486 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [7] (nec Woodhouse).
Peucæa æstivalis, var. *arizonæ*, Ridgw. N. Am. B. ii. p. 41 [8].
Peucæa mexicana, Ridgw. Proc. U. S. Nat. Mus. viii. p. 98 [9].
Peucæa arizonæ, Ridgw. Proc. U. S. Nat. Mus. i. p. 127 [10].

Supra cinereo-rufescens, capitis et interscapulii plumis medialiter fusco-nigris, harum autem marginibus rufescentibus fusco mixtis; alis nigricantibus, tectricibus omnibus pallide fusco late, remigibus rufo anguste, extus limbatis; cauda producta nigricanti, rectricum externarum apicibus valde dilutioribus pallide cinereis; subtus ochraceo-albidus, pectore cinerascentiore, gula clariore, præcipue ad latera rufescente; campterio flavicante; rostro corneo, tomiis pallidis, pedibus flavis. Long. tota 6·0, alæ 2·5, caudæ 2·6, rostri a rictu 0·5, tarsi 0·85. (Descr. maris ex Atlisco, Mexico. Mus. nostr.)

Hab. North America, Texas, Arizona.—Mexico, plains of Colima (*Xantus* [3 4]), Los Nogales, Sonora (*Kennerly* [8]), Guanajuato (*Dugès*), Orizaba (*Botteri* [1]), Mirador, Huatusco (*Sartorius*), Atlisco (*Boucard* [2]), Putla (*Rébouch*).

We have the types of *Zonotrichia botterii*, Scl., of *Coturniculus mexicanus*, Lawr., and of *Peucæa æstivalis*, var. *arizonæ*, Ridgw., before us, six other specimens from various parts of Mexico, and one from Fort Brown, Texas—ten specimens in all. Judging from the variations observable in these examples, we do not hesitate to pronounce them all of one species. The extent to which the edgings of the dorsal feathers are worn makes a great difference in the appearance of the back, the older the plumage the darker this portion becomes through the abrasion of the lighter edging of the feathers. The darkest specimen is one sent us by the authorities of the Smithsonian Institution from Mirador; this is a little darker than the type of *P. botterii*. *P. mexicana* comes next in the series, then follow specimens mostly from Orizaba, and the lightest in colour are the type of *P. æstivalis arizonæ*, the Fort Brown example, and two from Mexico (Putla and Atlisco). All these four were shot in June, and their plumage is comparatively fresh.

There is a slight divergence on the part of *P. æstivalis arizonæ* in that the dark stripes of the crown are more restricted to the anterior portion and those of the back are more circumscribed, but the difference is not considerable.

P. botterii was described by Mr. Sclater from a specimen obtained by the late Mateo Botteri near Orizaba, where he resided many years, and other specimens have from time to time been obtained in the same district. It is to this species, doubtless, that Sumichrast refers, under the name *P. cassini*, saying that it is resident in the temperate region of the valley of Orizaba [7].

Mr. Ridgway has recently written on this subject, urging that *Coturniculus mexicanus*, Lawr., and *Zonotrichia botterii*, Scl., are distinct species; but with the types of both birds before us, we are confident that this view cannot be maintained, for the difference between them is quite inappreciable. The dark aberrant specimen from Mirador, in the U. S. National Museum, has been the cause of this opinion of Mr. Ridgway's, it having done duty as a normal *P. botterii*. It will be seen in the paper referred to that *P. æstivalis arizonæ* and the bird called *P. mexicana* are considered distinct species, though we here put them together, drawing our limits of variation rather wide.

We have, as already stated, specimens of both birds before us, but a larger series may show that our present view is wrong; the geographical distribution of the birds is, however, in our favour. Mr. Ridgway will doubtless review the question, with our assurance that *C. mexicanus* and *Z. botterii* are inseparable.

The relationship of *P. botterii* to *P. æstivalis* is close, the difference consisting in the latter bird being darker, with the head and neck deeper rufous; beneath, the plumage is much greyer, *P. botterii* being here of an ochre colour, especially on the chest and flanks.

Mr. Sennett found *P. botterii* in some numbers on a salt prairie about nine miles from Fort Brown; but he obtained specimens with difficulty, owing to their hiding so closely in the tall grass. He describes its notes as quite pleasing. A nest found on 16th June was placed among the roots of a tussock of grass, and was made of blades and stems of grass; this nest was rather deep, but too frail to admit of removal. The four eggs it contained were unspotted white, with a strong tinge of greenish blue. They thus differ from the eggs of *P. æstivalis*, which are of a crystalline white.

2. **Peucæa cassini.**

Zonotrichia cassini, Woodh. Pr. Ac. Phil. 1852, p. 60 [1].

Peucæa cassini, Dresser, Ibis, 1865, p. 489 [2]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 42 [3]; Sennett, Bull. U. S. Geol. Surv. iv. p. 18 [4]; Proc. U. S. Nat. Mus. i. p. 128 [5].

Supra fusco-brunnea, plumis undique cinerascente marginatis, superciliis indistincte albidis ad nares albicantioribus, fascia postoculari indistincte fusca; subtus albida, pectore vix fusco lavato; hypochondriis fuscescenti hic illic striatis, crisso pallide cervino, campterio alari flavido; rostro corneo, culmine fuscescente, pedibus flavidis. Long. tota 5·8, alæ 2·6, caudæ 2·6, rostri a rictu 0·5, tarsi 0·75. (Descr. exempl. ex Arizona. Mus. nostr.)

Hab. North America, Western Texas [1], Rio Grande valley [2 3 4 5].—Mexico?

It is questionable if this Finch should be included in the Mexican fauna. It is true Sumichrast says that it occurs in the temperate region of the valley of Orizaba in the State of Vera Cruz, but we agree with the authors of the 'History of North-American Birds' in thinking that the species referred to was most probably not *P. cassini* but *P. botterii*. Then, again, the specimen obtained by Kennerly at Los Nogales, in Sonora, and referred by Prof. Baird to *P. cassini*, now proves to belong rather to *P. botterii*, and is the *P. æstivalis arizonæ* of American authors. The claims therefore of *P. cassini* to be inserted in this fauna are hardly established, though we have no doubt whatever that it will be found on the south side of the Rio Grande valley, occurring as it does commonly in Texas, and is also found close to our frontier in Arizona. It is to be noted also that Mr. Sennett says that this bird arrives in Texas, doubtless from the south, in March. The same traveller describes its nest as placed at the foot of a bush close to the ground, and composed of dried grasses lined with finer ones and a few hairs. The eggs are pure white.

b. *Sp. striga utrinque rictali nigra, campterio albo.*

3. **Peucæa boucardi.**

Zonotrichia boucardi, Scl. P. Z. S. 1867, p. 1, t. 1 [1].

Peucæa ruficeps, Scl. P. Z. S. 1859, p. 380 [2]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [3] (nec Cassin).

Peucæa ruficeps, var. *boucardi*, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 21 [4]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 38 (partim) [5].

Peucæa ruficeps eremœca, N. C. Brown, Bull. Nutt. Orn. Club, vii. pp. 26, 38 [6].
Ammodromus —— ?, Scl. P. Z. S. 1857, p. 214 [7].

Supra cinerea, plumis medialiter brunneis cinereo late marginatis; pileo fere omnino rufo cinereo intermixto, vitta verticali indistincta, linea superciliari ante oculos et oculorum ambitu albis, genis et cervicis lateribus pure cineriis; remigibus et rectricibus intus nigricantibus extus brunnescente-cinereo marginatis, secundariis brunnescentioribus et latius marginatis, tectricibus extus dorso fere concoloribus; subtus albicante-cinerea, gutture toto albo striga utrinque nigra; ventre medio lactescente albo, utrinque cum crisso fulvescente tincto; rostri maxilla nigra, mandibula cum pedibus pallidis. Long. tota 6·4, alæ 2·7, caudæ 3·0, tarsi 0·8. (Descr. exempl. ex Puebla, Mexico. Mus. nostr.)

Hab. North America, Texas [6], Arizona.—Mexico, temperate region of Vera Cruz [3], Puente Colorado [3] (*Sumichrast*), Orizaba (*Botteri* [2 7]), Puebla [1], Oaxaca [2] (*Boucard*).

Mr. Sclater based his description of this species upon a specimen from Puebla and three from Orizaba, and though one of the latter seems to have been correctly described in 'The History of North-American Birds,' the name *P. boucardi* has latterly been associated by American authors with a bird from Arizona which is so slightly separated from the Californian *P. ruficeps* that we doubt its being a definite race; the crown is of a slightly paler chestnut, and the dorsal feathers have less defined edges, giving the back a more uniform tint. The true *P. boucardi* seems to be distinct from either of these birds; not only is the crown darker, but the central feathers have pale edges, so that there is a faint median stripe on the crown; the dorsal feathers have well-defined rufous-brown centres and are broadly edged with dark grey, giving the back a more definitely striped appearance than is the case in *P. ruficeps*, and still less in the Arizona form of it. *P. boucardi*, however, does occur in Arizona; a male obtained by Mr. G. B. Sennett at Catalina Mill, 1st October, 1883, now in the British Museum, agrees accurately with the Mexican type; and it also occurs in Texas, for we have no doubt that the bird described by Mr. Brown as *Peucæa ruficeps eremœca* is the true *P. boucardi*, and this opinion is made certain in that Mr. Brown states that his specimens agree with an example from Orizaba typical of *P. boucardi*!

The difficulties connected with the tangled synonymy of this species are to some extent dissipated if we admit, as seems undoubtedly to be the case, that *P. ruficeps* does not occur at all in Mexico, unless the pale Arizona form of it crosses the Sonoran frontier, which is extremely probable. On the other hand *P. boucardi* spreads over the whole country and passes into Texas, and also into Arizona, where it is found in contact with the Arizona *P. ruficeps*.

As unfortunately is so frequently the case, nothing of the habits of *P. boucardi* have reached us from Mexico, but Mr. Brown tells us that it is not uncommon, and apparently resident at Bœrne in South-western Texas, in rocky localities usually near the creek, but is also found in barren places a mile or more from water. The bird is of shy skulking habits, rarely taking wing, but hiding from danger in bushes and weeds. The song of the male is a pretty warble, but not of so fine a quality as that of *P. æstivalis*.

4. **Peucæa notosticta.** (Tab. XXVIII. fig. 1.)

Peucæa notosticta, Scl. & Salv. P. Z. S. 1868, p. 322 [1].

Supra fuscescente-cinerea, interscapulio et alarum tectricibus distincte nigro striatis; pileo medio cinereo, utrinque rufescente-brunneo nigro striato; superciliis et oculorum ambitu albis; alis et cauda nigricante-cinereis, plumarum marginibus dilutioribus, secundariis extus brunescente limbatis; subtus alba cinereo, præcipue in pectore et lateribus lavata; ventre medio et crisso dilute cinnamomeis; striga mentali utrinque nigricante; rostro nigro, pedibus flavicantibus. Long. tota 6·5, alæ 2·7, caudæ 3, rostri a rictu 0·5, tarsi 0·7. (Descr. exempl. ex Mexico merid. Mus. nostr.)

Hab. Mexico (*Boucard*), Oaxaca (*Boucard* [1]).

This species was described from a single specimen obtained in Southern Mexico, probably in the State of Puebla, by M. Boucard, but the exact locality where it was shot is not stated on the label.

Though allied to *P. boucardi* it is certainly distinct; the rufous-brown sides of the crown are clearly marked with black, and there is a definite median streak; the middle of the back, too, is much more clearly striped, and the bill is wholly black, though this may be a seasonal character.

In Mr. Sclater's collection, now in the British Museum, there is a second specimen of this species, but in more immature plumage. The crown is uniformly rufous without the black lateral streaks and the median stripe, and the general tint of the plumage above is more rufescent. In spite of these differences we do not hesitate to consider this bird to be a young example of *P. notosticta*.

HÆMOPHILA.

Aimophila, Swainson, Anim. in Menag. p. 113.

We know of nine normal species of *Hæmophila*. A tenth has been recently described by Mr. Sclater as *H. pulchra* (Ibis, 1886, p. 258, t. 8) from Western Peru; but this has evidently some aberrant characters, one of the most obvious being the white lateral tail-feathers.

Of the nine species only one (*H. stolzmanni*) occurs beyond our limits in Western Peru. Of the other eight, six are purely Mexican, one reaches Guatemala, and one is found from Guatemala to Costa Rica.

In their range the species of *Hæmophila* enjoy considerable diversity, so far as altitude is concerned—*H. rufescens* being found in the mountains as high as 8000 feet and as low as 1500, and *H. ruficauda* between 2000 feet and the sea-level. The species with which we are acquainted are inhabitants of scrubby forest and brushwood, and are not found in the denser and more lofty tropical forest.

Hæmophila rufescens has a stout bill, the culmen slightly arched and produced backwards towards the forehead; the tomia is angulated and slightly undulating anteriorly; the nostrils are at the lower anterior end of the nasal fossa, and are bordered above by a membrane; below the nostril the maxilla is slightly tumid. The wings are short

and rounded, the third and fourth quills being longest, the fifth is longer than the second, which nearly equals the sixth; the first is a little longer than the longest secondaries. The tail is long and much rounded, the feathers being rather narrow. The tarsi are strong, the toes rather short, the middle toe and claw being a little shorter than the tarsus.

A. *Caput stria verticali obvia, superciliis elongatis.*

a. *Stria verticali fusca aut fusca nigro variegata.*

a'. *Stria utrinque rictali nigra.*

1. Hæmophila rufescens. (Tab. XXIX. fig. 2.)

Pipilo rufescens, Sw. Phil. Mag. new ser. i. p. 434 [1]; Bp. Consp. Av. i. p. 486 [2].

Aimophila rufescens, Sw. An. in Menag. p. 313 [3]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [4].

Hæmophila rufescens, Cab. Mus. Hein. i. p. 132 [5]; Scl. P. Z. S. 1858, p. 98 [6]; 1859, pp. 365 [7], 380 [8]; Scl. & Salv. Ibis, 1859, p. 18 [9]; 1860, p. 34 [10]; Dugès, La Nat. i. p. 140 [11]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 22 [12].

Embernagra pyrgitoides, Lafr. Rev. Zool. 1839, p. 97 [13].

Geospizopsis melanotis, Bp. Compt. Rend. xlii. p. 955 [14]; Scl. P. Z. S. 1856, p. 306 [15].

Supra castaneo-brunnea, dorso medio indistincte fusco guttato, capite summo castaneo utrinque nigro limbato, stria verticali rufo-grisea, superciliis et capitis lateribus grisescentibus, oculorum ambitu et striga post-oculari nigris, ciliis ipsis albis; subtus albida, pectore et lateribus ochraceo-griseo lavatis, stria utrinque rictali nigra; rostri maxilla nigra, mandibula pallida, pedibus carneis. Long. tota 6·7, alæ 2·8, caudæ 3·0, rostri a rictu 0·8, tarsi 1·0. (Descr. exempl. ex Orizaba, Mexico. Mus. nostr.).

♀ mari similis.

Juv. Capite summo indistincte striato, capitis lateribus obscure ochraceis fusco striatis, corpore subtus flavido, pectore fusco guttulato. (Descr. av. juv. ex Dueñas, Guatemala. Mus. nostr.)

Hab. Mexico [2 5 13] (*Sallé* [15]), Temiscaltepec (*Bullock* [1]), Guanajuato (*Dugès* [11]), temperate region of Vera Cruz, Orizaba (*Sumichrast* [4]), Jalapa (*de Oca* [7], *Höge*), Juquila, Villa Alta (*Boucard* [8]), Guichicovi (*Sumichrast* [12]); Guatemala (*Skinner* [9]), Dueñas (*O. S.* [10]), Quezaltenango, Carrizal, San Gerónimo, pine-ridge of Poctun (*O. S. & F. D. G.*).

A specimen from Orizaba, Southern Mexico, agrees accurately with Swainson's type now before us; another from Jalapa has the back more distinctly striped with wider and darker streaks of blackish brown, the breast, too, is rather greyer. Specimens from the Guatemala highlands (Dueñas, &c.) are rather larger than the type (wing fully 3 inches); but a male from the pine-ridge of Poctun, southward of Peten, diverges most in having a very short wing (2·55 inches) and the mandible the same horny black as the maxilla. We have only one example from the last-named locality, so that we are not in a position to speak generally of the *Hæmophila* of that somewhat peculiar region, one that belongs to some extent to the district of Yucatan rather than to Mexico proper or Guatemala.

Hæmophila rufescens was described by Swainson from a specimen obtained by

Bullock at Temiscaltepec in Mexico [1]. It was placed at first by its describer in the genus *Pipilo*, but afterwards transferred to *Hæmophila*. Two other names have been proposed for it, viz.:—*Geospizopsis melanotis* by Bonaparte [14], the description being based, so Mr. Sclater tells us, on a young bird of this species or of *H. superciliosa* [6]; and *Embernagra pyrgitoides* by Lafresnaye in 1839 [13]. The latter is certainly a synonym of *H. rufescens*.

Sumichrast tells us [4] that *H. rufescens* inhabits the temperate region of Southern Mexico, where it is common and most abundant at elevations between 2000 and 5000 feet above the sea. Its nest, which is often found near Orizaba, is usually placed at the foot of a bush, and its eggs (two in number) are white. In Guatemala we used usually to find it in the mountainous region, at elevations between 4000 and 8000 feet. It resorts to bushes and second-growth woods, where it is to be seen on or near the ground. Southwards of Guatemala we have no record of its occurrence.

2. Hæmophila sumichrasti.

Hæmophila sumichrasti, Lawr. Ann. Lyc. N. Y. x. p. 6 [1]; Bull. U. S. Nat. Mus. no. 4, p. 22 [2].

Supra pallide rufescens, dorso guttis fusco-nigris dense maculato, uropygio immaculato, tectricibus caudæ superioribus rufis; occipitis lateribus rufis, pileo medio longitudinaliter cinereo, stria superciliari griseo-albicante, infra eam post oculos linea rufa; genis, cervicis lateribus et pectore cinereis, gula et abdomine medio albis, hypochondriis et crisso rufis; alis fuscis rufo limbatis, tectricibus rufis intus nigricantibus; cauda fusca, tectricibus medio omnino lateralibus pogonio externo rufis; rostri maxilla cornea, mandibula pallida, pedibus carneis. Long. tota 6·0, alæ 2·8, caudæ 2·7, rostri a rictu 0·65, tarsi 0·85. (Descr. maris ex Juchitan, Mexico. Mus. nostr.)

Hab. Mexico, Juchitan (*Sumichrast* [1 2]).

This is clearly a species distinct from *H. rufescens*, which seems to be its nearest ally rather than *H. melanotis*, with which Mr. Lawrence compared it [1]. Its smaller size and different markings of the head, together with the dark rictal streak, render it easily recognized.

The late Prof. Sumichrast alone obtained this *Hæmophila* on the isthmus of Tehuantepec, whence he sent a specimen to Washington, Mr. Lawrence's type. We have another from the same source, answering exactly to the description—a male, shot 8th April, 1870.

b′. *Stria utrinque rictali nulla.*

3. Hæmophila superciliosa. (Tab. XXX. fig. 1.)

Aimophila superciliosa, Sw. An. in Menag. p. 314 [1]; Bp. Consp. Av. i. p. 486 [2].

Supra brunnescens nigro guttulata, vertice rufa nigro guttata, stria mediali vix pallidiori dorso concolori, superciliis elongatis sordide albidis, capitis lateribus nigris, tectricibus auricularibus albo intermixtis; subtus gula sordide alba, abdomine toto griseo; cauda fusco-nigra rufescente limbata, rectricibus utrinque duabus externis versus apicem medialiter albidis; rostro nigro, pedibus carneis. Long. tota 6·5, alæ 2·85, caudæ 2·7, rostri a rictu 0·6, tarsi 0·95. (Descr. exempl. ex Mexico. Mus. nostr.)

♀ mari similis.

Hab. Mexico (*Swainson* [1], *Boucard*), Ciudad in Durango (*Forrer*).

This *Hæmophila*, though well described by Swainson, was for some time confused with *H. rufescens*, from which it is certainly distinct. The greater amount of striation of the upper plumage, especially of the head, the absence of a black upper margin to the superciliary stripes, and the white streaks on the ear-coverts, the absence of the rictal streaks, as well as its greyer plumage beneath, render it not difficult to recognize.

We have Swainson's type before us, with which a skin (that figured and described) furnished us by M. Boucard agrees, as do others of both sexes obtained by M. Alphonse Forrer at Ciudad, in the State of Durango. Sumichrast, in his note on *H. rufescens*, conjectures that this bird replaces that species in the alpine regions of Vera Cruz, but he does not appear to have obtained specimens to prove that this is the case. M. Forrer's birds were shot in the Sierra Madre between Mazatlan and Durango.

Hæmophila superciliosa cannot be called a common bird; we have only occasionally seen specimens in Mexican collections containing characteristic upland species.

b. *Stria verticali alba.*

4. **Hæmophila ruficauda.** (Tab. XXX. fig. 2.)

Chondestes ruficauda, Bp. Compt. Rend. xxxvii. p. 918[1].

Hæmophila ruficauda, Scl. & Salv. Ibis, 1860, p. 398 [2]; Salv. Ibis, 1870, p. 114 [3]; Nutting & Ridgw. Proc. U. S. Nat. Mus. vi. p. 383 [4].

Hæmophila tolteca, v. Müll. Syst. Verz. Wirb. Mex. p. 50 [5]?

Supra rufescens, dorso medio fusco guttato, stria verticali et superciliis utrinque elongatis, flavido-albidis, vertice utrinque fusca rufo intermixta, capitis lateribus fusco-nigris, tectricibus auricularibus cinerascentibus; alis fuscis rufescente limbatis, tectricibus minoribus et scapularibus fere pure rufis; cauda fusca, rectricibus mediis rufis, rachide fusca; subtus albida, pectore pallide cinereo, hypochondriis et crisso rufescentibus; rostro corneo, mandibula pallida, pedibus carneis. Long. tota 7·0, alæ 2·9, caudæ 3·1, rostri a rictu 0·6, tarsi 0·85. (Descr. exempl. ex Chuacus, Guatemala. Mus. nostr.)

Hab. Guatemala, Chol, Chuacus, and the Motagua valley [2], from Guastatoya to Gualan (*O. S. & F. D. G.*); Salvador, Acajutla (*O. S.*); Nicaragua, Sucuyá (*Nutting* [4]); Costa Rica (*Carmiol*).

A rare species of local though wide distribution in Central America. In Guatemala we only met with it in the valley of the Motagua river, where it was occasionally seen on the road between the city of Guatemala and Salama [2]. We also saw it on several occasions lower down the valley, as far as Gualan. In Nicaragua Mr. Nutting states that it is common about the hedges near Sucuyá [4]. From Costa Rica we have a specimen sent us by Carmiol.

The habits of *H. ruficauda* are like those of *H. rufescens*; it is to be found in bushes on or near the ground. It is not shy, but not easy of observation, owing to its skulking habits.

We are inclined to think that *H. tolteca* of von Müller belongs here [5], though the

description does not altogether suit the bird now under consideration. Moreover, the true *H. ruficauda* does not, we believe, occur in Mexico, whence v. Müller's bird is stated to have come. This statement, however, is not of much value, as v. Müller's catalogue contains names of many birds certainly not Mexican.

5. **Hæmophila lawrencii,** sp. n.

Hæmophila ruficauda, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 22 [1] (nec Bonaparte).

H. ruficaudæ similis, sed striis capitis albis haud flavido tinctis, striis nigris haud rufo intermixtis, tectricibus auricularibus pure nigris et dorso minus guttato distinguenda. (Descr. exempl. ex Juchitan, Mexico. Mus. nostr.)

Hab. Mexico, Juchitan, near Tehuantepec (*Sumichrast* [1]).

We have a specimen of this *Hæmophila* obtained from Sumichrast through M. Boucard, named "*H. ruficauda*," and therefore, as we suppose, the bird so called in Mr. Lawrence's list of Tehuantepec birds [1]. For some time we had placed it with *H. melanotis*, Lawr., but its well-defined ashy breast, as well as the spots of the back being more restricted in extent, suggest its distinction from that species. They both have the stripes of the head pure black and white, and thus differ from the more southern *H. ruficauda*.

6. **Hæmophila acuminata.**

Zonotrichia melanotis, Lawr. Ann. Lyc. N. Y. viii. p. 473 [1]; Pr. Ac. Phil. 1868, p. 430 [2].
Aimophila melanotis, Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [3].
Hæmophila melanotis, Salv. P. Z. S. 1883, p. 422 [4].
Fringilla acuminata, Licht.

H. ruficaudæ quoque similis, longitudine alarum minore, pectore albicantiore, dorso magis striato et capitis striis albis et nigris differt. Ab *H. lawrencii* quoque longitudine alarum minore, dorso magis striato, et pectore haud cinereo discrepat. Long. tota 6·5, alæ 2·65, caudæ 3·1.

Hab. Mexico, Yuantepec (*Deppe*), plains of Colima (*Xantus* [1 3]), Acapulco (*A. H. Markham* [4]), between Puebla and Chiatla (*Rébouch*).

We are not quite sure if this bird should be referred to Mr. Lawrence's *H. melanotis*, which is said to have a wing three inches long, but which agrees in other respects. The only bird it can be confounded with is *H. lawrencii,* and this has a well-defined cinereous breast, and the spots of the back restricted to the interscapular region. The latter bird, too, seems to have been referred by Mr. Lawrence to *H. ruficauda*, rendering it more than probable that the present species is the true *H. melanotis.*

The bird originally obtained by Xantus at Colima was referred to *Zonotrichia*, but it clearly is a *Hæmophila*, as Mr. Lawrence subsequently discovered. It with *H. ruficauda* and *H. lawrencii* form a small section of the genus, distinguished *inter alia* by the white vertical streak.

Of the habits of this species Xantus says nothing.

The term *melanotis* given to this species by Mr. Lawrence cannot unfortunately be retained, for it has been previously applied to *H. rufescens* by Bonaparte, who called that bird *Geospizopsis melanotis*. This being the case, we have introduced Lichtenstein's undefined name *acuminata*, which is attached to the label of a specimen in the Sclater collection derived from the Berlin Museum.

B. *Caput stria verticali nulla, superciliis elongatis nullis, loris tantum albis.*

7. **Hæmophila humeralis.** (Tab. XXIX. fig. 1.)

Hæmophila humeralis, Cab. Mus. Hein. i. p. 132 [1].

Amphispiza ferrariperezi, Ridgw. Auk, iii. p. 332 [2].

Supra dorso medio rufescente-fusco guttulato, capite summo et cervice postica obscure nigricante-cinerea, dorso postico rufescente-fusco, alis et cauda fusco-nigricantibus, illis et tectricibus suis albido limbatis, scapularibus pure rufis; fronte, capitis lateribus et torque pectorali nigris; loris, stria utrinque mystacali, gula et abdomine medio albis, hypochondriis pallide cinerascentibus; rostri maxilla nigricante, mandibula pallida, pedibus corylinis. Long. tota 6·0, alæ 2·5, caudæ 2·8, rostri a rictu 0·6, tarsi 0·85. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. Mexico [1] (*Boucard*), Chietla, State of Puebla (*Diaz* [2]).

We know very little of this well-marked species, which was described by Prof. Cabanis from Mexican specimens as long ago as 1851. No mention is made of it in any of Mr. Sclater's lists of the collections of Sallé, Boucard, and others; nor does Sumichrast ever seem to have met with it. We have a single example furnished us by M. Boucard, but without special locality.

Mr. Ridgway has recently described a Mexican Finch under the name of *Amphispiza ferrariperezi* [2], and he kindly sent us a photograph of the types (male and female). We have no difficulty in recognizing them as representing *Hæmophila humeralis*. These birds are now in the National Museum of Mexico, and were obtained near Chietla in the State of Puebla, and are the only examples we know the precise locality of which has been recorded.

Mr. Ridgway compares the bird with *Amphispiza quinquestriata*, but its relationship certainly lies with *Hæmophila mystacalis*.

Our figure is taken from a bird in our collection, probably a female. The male, of which there is an example in the British Museum, has the head of a more uniform black.

8. **Hæmophila mystacalis.**

Zonotrichia mystacalis, Hartl. Rev. Zool. 1852, p. 3 [1]; Scl. P. Z. S. 1856, p. 305 [2]; 1859, p. 379 [3]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 21 [4].

H. humerali similis, capite summo cinereo nigro striato, subtus gula antica nigra nec alba, cervicis lateribus et pectore toto cinereis nec nigris, inter alia primo visu distinguenda. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mexico [1 2], Tehuacan (*Sumichrast* [4]), Oaxaca (*Boucard* [3]).

There can be no doubt that this species is a close ally of *H. humeralis*, with which it agrees in general facies; but it has a black throat instead of a white one, and the sides of the neck and the whole chest are ashy instead of black, thus rendering it easy of recognition.

Mr. Ridgway placed this species in *Amphispiza*, but the long rounded tail and very short wings associate it with the section of *Hæmophila* containing *H. ruficauda* and its allies, rather than with *Amphispiza*.

Its previous position was in *Zonotrichia*, of which it formed a decidedly abnormal member.

H. mystacalis has long been known as a bird of Southern Mexico, where it inhabits the mountainous regions of Oaxaca and the neighbourhood of Tehuacan. It is a resident species, Sumichrast having observed it in August, but of its habits we have no records.

CHAMÆOSPIZA.

Chamæospiza, Sclater, P. Z. S. 1858, p. 304.

This genus was founded by Mr. Sclater upon a single species, *C. torquata*, which has been treated as a *Pipilo* by DuBus, and as a *Buarremon* by Lawrence. The principal point laid stress upon by Mr. Sclater is the great size and strength of the feet and the length of the hind claw, which exceed those of any *Pipilo* or *Buarremon*. With the latter genus *Chamæospiza* has very strong affinities, and we much doubt the propriety of placing it here amongst the Finches instead of near *Buarremon* with the Tanagers. But we defer to the usual practice in this case.

The bill in *Chamæospiza* is strong but somewhat elongated, with a notch near the extremity of the tomia; the latter is slightly undulating, with an ill-defined angle on the proximal side of the middle; the nostrils are large, at the anterior lower end of the nasal fossa, with a membrane above them; the rictal bristles are short but stout. The wing is much rounded, the third, fourth, and fifth quills being the longest; the second equals the seventh, and the first falls short of the wing tip by more than half an inch. The tail is long and rounded. The tarsi and toes are very strong, the middle toe and claw being equal to the tarsus; the claw of the hind toe is longer than the toe itself, strong and moderately curved.

1. Chamæospiza torquata.

Pipilo torquata, DuBus, Bull. Ac. Brux. xiv. pt. 2, p. 105 [1]; Rev. Zool. 1848, p. 246 [2]; Esq. Orn. t. 36 [3]; Bp. Consp. Av. i. p. 487 [4].

Chamæospiza torquata, Scl. P. Z. S. 1858, p. 304 [5]; 1859, p. 365 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [7].

Buarremon ocai, Lawr. Ann. Lyc. N. Y. viii. p. 126 [8].

Supra olivacea, capite summo læte castaneo; fronte, capitis lateribus et torque pectorali nigris, superciliis elon-

gatis, griseo-albis; subtus gula et abdomine medio albis, hypochondriis et crisso fuscis; campterio alari flavo; rostro nigro, pedibus corylinis. Long. tota 8·0, alæ 3·5, caudæ 4·0, rostri a rictu 0·75, tarsi 1·1. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

♀ mari omnino similis.

Hab. Mexico [1 2 4], La Parada (*Boucard* [5]), Oaxaca (*Fenochio*), alpine region of Vera Cruz (*Sumichrast* [7]), Jalapa (*de Oca* [6 8]).

Though this species has been long known, having been described by DuBus in 1847, from specimens in the Brussels Museum obtained in Mexico, it must be considered a rare bird in collections, and but few specimens have come under our notice. Sumichrast says that it is exclusively confined in its range to the alpine region of the State of Vera Cruz, where it is generally diffused throughout the pine-woods and mountains of Orizaba, where it is resident. The limits of the zone within which it is found range from 5000 to 10,000 feet. He adds that the plumage and habits of this bird present a remarkable analogy to those of *Buarremon brunneinuchus*. Both are ground-birds rather than perchers, and frequently meet together in the same localities.

Buarremon ocai of Lawrence is, we believe, undoubtedly a synonym of this species, which was little known at the time Mr. Lawrence described it in 1865.

PYRGISOMA.

Pyrgisoma, Bonaparte, Consp. Av. i. p. 486 (1850).

Including *Pyrgisoma kieneri*, concerning the habitat of which there is some doubt, six species of *Pyrgisoma* are found within our limits—one or two in Mexico, two in Guatemala, and two in Costa Rica, none of them probably being common to any two of these districts. Besides these, two species occur in Peru, which Mr. Sclater (Ibis, 1885, p. 275) considers belong to *Pyrgisoma*, though one of them has been placed in *Buarremon* and the other in *Pipilo*.

Pyrgisoma is evidently related to *Pipilo*, having much in common both as regards the form of the bill, the shortness of the wings, and other characters suitable for a terrestrial mode of life. But the coloration is divergent, and more suggestive of a connection with the Tanagrine genus *Buarremon*, which contains birds of very similar habits. Indeed it has long been evident that the status of these and some other allied forms requires careful revision. This is an undertaking outside the scope of this faunistic work.

The bill of *Pyrgisoma* (*P. biarcuatum*) is moderately stout, the culmen slightly arched, the nostril at the lower anterior end of the nasal fossa with a membrane above; beneath the nostrils the maxilla is rather tumid; the tomia is slightly angular and sinuated, and near the distal end is a faintly indicated notch; the rictal bristles are short but strong; the wing is much rounded, the fourth quill the longest, the third equals the fifth, the second equal to the outer secondaries, which are considerably longer than the

inner primaries; the first primary falls half an inch short of the wing tip; the tail is moderate and considerably rounded; the tarsi are strong, the toes rather short, the middle toe and claw a little shorter than the tarsus, the claw being long.

a. *Guttur album, pileus castàneus.*

a'. *Macula pectoralis nigra nulla.*

1. Pyrgisoma biarcuatum.

Pyrgita biarcuatus, Prév. Voy. Vénus, Ois. t. 6[1].

Pyrgisoma biarcuatum, Bp. Consp. Av. i. p. 486[2]; Scl. & Salv. Ibis, 1859, p. 18[3]; Salv. Cat. Strickl. Coll. p. 234[4].

Supra brunneo-fuscum, pileo postico et nucha læte castaneis, fronte et macula subauriculari utrinque nigris, auricularibus ipsis castaneis; loris, regione oculari et corpore subtus lactescente-albis, cervicis lateribus grisescentibus, hypochondriis et crisso fuscis; rostro nigro, pedibus corylinis. Long. tota 6·3, alæ 2·7, caudæ 3·0, rostri a rictu 0·6, tarsi 1·0. (Descr. exempl. ex Coban, Guatemala. Mus. nostr.)

Av. juv. supra fuscus nigro irroratus; subtus albidus, pectore fusco maculatus; capitis lateribus albidis fusco mixtis, macula subauriculari nigra. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. GUATEMALA (*Constancia*[4]), Dueñas[3], Escuintla, Retalhuleu, Coban (*O. S. & F. D. G.*).

This species was described by Prévost from specimens obtained during the voyage of the French frigate 'Vénus.' These examples were said to have been from California and Guatemala[2]—the former locality evidently an error, for subsequent observations have fixed the species to Guatemala, outside the limits of which country *P. biarcuatum* has never been seen.

In Guatemala, however, it is a very well-known bird; and in the highlands, where it is quite common, it goes by the trivial name of "Quatro-ojos," the marks on the face giving it the appearance of having four eyes.

It is a resident species, frequenting thick underwood near the more open and cultivated districts, living on or near the ground. It builds a very deep nest, composed of dead leaves and sticks, and lined with a few horsehairs; this structure is placed in a low bush five or six feet from the ground. The eggs, usually two in number, are closely but distinctly spotted with red on a ground of creamy white.

Though *P. cabanisi* has been mistaken for this bird, *P. biarcuatum* enjoys the privilege as yet of being without a synonym.

b'. *Macula pectoralis nigra.*

2. Pyrgisoma kieneri.

Pyrgisoma kieneri, Bp. Consp. Av. i. p. 486[1]; Scl. & Salv. P. Z. S. 1868, p. 325[2]; Ex. Orn. p. 130, t. 65. f. 2[3].

Fuscum, pileo et capitis lateribus rufis; plumis auricularibus dorso concoloribus, harum autem apicibus casta-

neis, loris albescentibus, fronte et genis fuscescente-nigris ; subtus album, hypochondriis dorso concoloribus, macula pectorali indistincta nigra ; crisso rufescente ; rostro nigricante-corneo, pedibus pallide corylinis. Long. tota 7·3, alæ 3·3, caudæ 2·9, tarsi 1·0. (Descr. exempl. typ. ex —— ? Mus. Paris.)

Hab. Mexico (?).

We have nothing to add to the account of this bird given in 1868 in 'Exotic Ornithology,' where the type specimen of the Paris Museum was described and figured. No other example has come under our notice, and we still remain in ignorance of the precise habitat of the species ; but the evident resemblance of the bird to *P. rubricatum* is suggestive of a Mexican or Central-American domicile.

Compared with *P. rubricatum*, *P. kieneri* is a larger bird, with a stouter bill and much stronger feet and tarsi ; moreover, the former species has a white ring round the eye wanting in the latter, and the summit of the head brown like the back instead of bright rufous.

The type specimen, which, so far as we know, remains unique, is marked as having been procured in May 1843, during the expedition of the 'Danaide,' by M. Jaurés, but no locality is attached to the label.

3. **Pyrgisoma rubricatum.**

Tanagra rubricata, Licht. in Mus. Berol. [1].
Atlapetes rubricatus, Cab. Mus. Hein. i. p. 140 [2].
Melozone rubricata, Cab. J. f. Orn. 1860, p. 413 [3] ; 1866, p. 234 [4].
Pyrgisoma rubricatum, Scl. & Salv. P. Z. S. 1868, p. 326 [5] ; Ex. Orn. p. 127, t. 64. f. 1 [6] ; Lawr. Mem. Bost. Soc. N. H. ii. p. 278 [7].
Pyrgisoma xantusi, Lawr. Ann. Lyc. N. Y. viii. p. 480 [8].

Supra cinereum fusco vix tinctum ; pileo postico cum nucha et linea cervicali utrinque ad gulam extensa rufis ; macula anteoculari et oculorum ciliis albis ; fronte et facie sub oculis nigricante-schistaceis ; tectricibus auricularibus dorso concoloribus ; subtus album, plaga pectorali nigra, crisso rufescente, hypochondriis dorso concoloribus, subalaribus et flexura alari albis ; rostro nigro, pedibus pallide corylinis. Long. tota 7·0, alæ 3·2, caudæ 3·0, rostri a rictu 0·6, tarsi 1·0.

Hab. Mexico [1], Mazatlan, Tepic, and San Blas (*Grayson* [7], *Xantus* [7]), Presidio (*Forrer*), plains of Colima (*Xantus* [7 8]), Real Arriba (*Deppe* [2]), Atlisco (*Boucard* [5 6]).

The original specimens of this species were contained in Deppe's collections and sent to the Berlin Museum, where they remained until 1851, when Prof. Cabanis described them as *Atlapetes rubricatus*, adopting the unpublished specific name given them by Lichtenstein.

P. rubricatum was subsequently discovered at Colima by Xantus, and near Mazatlan as well as Tepic and San Blas by Grayson, who remarks that it is not an abundant species, though resident throughout the year, inhabiting chiefly the woods. M. Alphonse Forrer also found it at Presidio near Mazatlan. In this part of Mexico this species therefore lives near the sea-coast ; but further south, where M. Boucard met with it near Atlisco in the State of Puebla, it frequents the mountainous region.

Regarding the name *Pyrgisoma xantusi* proposed for this species by Mr. Lawrence, there can be little doubt it is synonymous with *P. rubricatum*. We have a typical specimen of the former before us which agrees with M. Boucard's Atlisco example, which came from the same region as the types of the latter.

4. Pyrgisoma cabanisi.

Pyrgisoma cabanisi, Scl. & Salv. P. Z. S. 1868, p. 324[1]; Ex. Orn. p. 129, t. 65. f. 1[2]; Salv. Ibis, 1869, p. 314[3].

Melozone biarcuata, Cab. J. f. Orn. 1860, p. 412 (nec Lafr.)[4].

Pyrgisoma biarcuatum, Lawr. Ann. Lyc. N. Y. ix. p. 103[5]; Frantz. J. f. Orn. 1869, p. 301[6].

Pyrgisoma kieneri, Cass. Pr. Ac. Phil. 1865, p. 169[7]; Lawr. Ann. Lyc. N. Y. ix. p. 103[8]; Frantz. J. f. Orn. 1869, p. 302[9].

Supra fuscum, pileo et plumis auricularibus castaneis, his infra nigro late marginatis; fronte nigra, loris et oculorum ambitus albis; subtus cinereum, medialiter album, striga utrinque rictali et plaga pectorali media nigris; subalaribus albis; rostro nigro, pedibus corylinis. Long. tota 5·5, alæ 2·8, caudæ 2·3, rostri a rictu 0·6, tarsi 1·0. (Descr. exempl. ex Irazu, Costa Rica. Mus. nostr.)

Hab. Costa Rica, San José (*Hoffmann*[3], *Ellendorf*[3], *Carmiol*[8]), Grecia (*Carmiol*[8]), Irazu (*Rogers*).

There has been a good deal of confusion respecting this species, which has at various times been called *P. biarcuatum* and *P. kieneri*, until it was described under its present title in 1868 by Sclater and Salvin and figured in their 'Exotic Ornithology' *.

From *P. biarcuatum* it may at once be recognized by the presence of a black pectoral spot, and the white circumocular region, especially below, is much more restricted; moreover, there is a black rictal line not present in the allied bird. *P. kieneri* is larger, has no black rictal stripe, the white of the side of the face restricted to the lores, &c.

P. cabanisi, so far as we know at present, is restricted in its range to the uplands of Costa Rica, where it would appear to be far from rare, and indeed probably as common a species there as *P. biarcuatum* is in Guatemala. Hoffmann obtained the first specimens, and sent them to the Berlin Museum[3]. It has since been secured by nearly every collector who has worked in Costa Rica.

b. *Guttur nigrum, pileus aut niger aut cinereus, haud castaneus.*

5. Pyrgisoma leucote.

Melozone leucotis, Cab. J. f. Orn. 1860, p. 413[1]; Cass. Pr. Ac. Phil. 1865, p. 169[2]; Frantz. J. f. Orn. 1869, p. 302[3]; Lawr. Ann. Lyc. N. Y. ix. p. 103[4].

---

* This figure does not represent the distribution of colour about the eye very accurately. Well-preserved specimens show a white triangular spot behind the eye and a broad black line proceeding from below the eye and surrounding the rufous ear-coverts.

Pyrgisoma leucote, Scl. & Salv. P. Z. S. 1868, p. 326[5]; Ex. Orn. p. 128 (partim)[6]; Scl. Ibis, 1873, p. 373[7].

Supra olivaceo-brunnescens, capite et pectore nigris; loris, oculorum ambitu et regione parotica albis; nuchæ et cervicis lateribus aureo-virescentibus, cervice postica olivaceo induta; pectoris plumis albo intermixtis; abdomine medio albo, hypochondriis anticis griseis, posticis fuscis, crisso ferrugineo; campterio alari flavo notato; rostro nigro, pedibus corylinis. Long. tota 6·8, alæ 3·0, caudæ 2·8, rostri a rictu 0·6, tarsi 1·1. (Descr. maris ex San José, Costa Rica. Mus. nostr.)

Hab. Nicaragua, Chontales (*Belt*[7]); Costa Rica[1] (*Hoffmann, v. Frantzius*), Angostura, Guaitil (*Carmiol*[2 4], *v. Frantzius*[3 4]), San Juan (*v. Frantzius*[4]).

This Costan-Rican species was discovered by Hoffmann and v. Frantzius, and though an allied Guatemalan bird has since been referred to it, further comparison has shown that the more northern species is really distinct, as will appear below. Thus *Pyrgisoma leucote* has a very restricted range, which hardly extends beyond Costa Rica, though Belt found it in the Chontales district of Nicaragua.

Its habits have not been described, but they doubtless resemble those of the allied bird *P. occipitale*, of which we give a short account below.

6. Pyrgisoma occipitale.

Pyrgisoma occipitale, Salv. Ibis, 1878, p. 446[1].
Chamæospiza torquata, Scl. & Salv. Ibis, 1860, p. 274 (nec DuBus)[2].
Pyrgisoma leucote, Salv. Ibis, 1866, p. 205 (nec Cab.)[3]; Scl. & Salv. P. Z. S. 1868, p. 326 (partim)[4]; Ex. Orn. p. 128 (partim), t. 64. f. 2[5].

P. leucoti affine, sed pileo medio cinereo nec nigro, superciliis distinctis flavis et macula pectorali minuta distinguendum.

Hab. Guatemala, Volcan de Fuego[1 2 5], Savana Grande, Volcan de Agua above San Diego (*O. S. & F. D. G.*).

A good deal of uncertainty for a long time prevailed respecting this Guatemalan species. The first specimen obtained (a young one) was referred to *Chamæospiza torquata.* It was then placed with the Costa-Rican *P. leucote*, under which title it was figured in 'Exotic Ornithology,' and it was not until 1878 that Salvin finally separated it under the name of *P. occipitale.*

We only know of the occurrence of this Finch in a very limited district of Guatemala, as all our specimens have been obtained from the second-growth forests lying between the volcanoes of Agua and Fuego at altitudes ranging between 2500 and 5000 feet above the sea-level. Here it is usually seen on or near the ground, scratching amongst dead leaves with its strong feet.

ATLAPETES.

Atlapetes, Wagler, Isis, 1831, p. 526.

This genus was founded by Wagler to contain *A. pileatus*, the only species properly belonging to it, though several others have been temporarily placed in it by various

authors. The position of the genus itself, too, is a matter of controversy, some writers placing it with the Tanagers near *Buarremon*, others near *Embernagra* with the Finches. It is the latter position that we have been accustomed to assign to it, but we are by no means confident that this view is the correct one. The form of the claws and feet indicate a more arboreal habit than that possessed by *Embernagra*, and the coloration, too, as well as the shape of the bill, conforms rather to *Buarremon*.

The bill has the culmen nearly straight, there is a lateral ridge on either side running from the nostril, which itself is pointed anteriorly and has a membrane along its upper edge; the tomia of the mandible is slightly angular, the anterior portion being nearly straight, with a perceptible notch near the extremity. The feet are rather slender, the middle toe and claw being about equal to the tarsus; the claws themselves are short and strongly curved; the wings are much rounded, the third quill is slightly longer than the second and fourth, the first falling half an inch short of the point of the wing; the tail is rather long, and the feathers narrow and pointed.

1. **Atlapetes pileatus.**

Atlapetes pileatus, Wagl. Isis, 1831, p. 526[1]; Bp. Consp. Av. i. p. 486[2]; Scl. P. Z. S. 1858, p. 304[3]; 1859, p. 380[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551[5].

Supra fusco-olivaceus, pileo toto castaneo, capitis et cervicis lateribus cinereis; loris, oculorum ambitu et regione parotica nigricantioribus; subtus flavus, hypochrondriis oleagineo-fuscis; rostri maxilla nigricante, mandibula et pedibus corylinis. Long. tota 5·8, alæ 2·5, caudæ 2·8, rostri a rictu 0·5, tarsi 0·9. (Descr. maris ex Totontepeque, Mexico merid. Mus. nostr.)

Hab. Mexico[1 2], La Parada[3], State of Oaxaca[4] (*Boucard*), alpine region of Vera Cruz (*Sumichrast*[5]).

Sumichrast tells us[5] that this species belongs exclusively to the alpine region, where it inhabits the forests of pines and oaks, having the same range of altitude as *Junco cinereus*, that is, between 6500 and 11,500 feet above the sea. It was first described by Wagler as long ago as 1831, in his paper on Mexican animals published in the 'Isis' for that year, and it has since been sent sparingly by collectors who have worked in the Mexican highlands. Its range seems limited to the higher mountain-ranges of Southern Mexico.

PIPILO.

Pipilo, Vieillot, Analyse, p. 32 (1816); Baird, Brew., & Ridgw. N. Am. B. ii. p. 104; Coues, Key N. Am. B. ed. 2, p. 395.

The members of this genus fall naturally into two sections, which Dr. Coues calls the black and the brown species—the former represented in our fauna by *P. maculatus* and its allies, the plumage of which is to some extent black; of the latter, *P. fuscus* is the typical form. To these a third group is added, of which *P. chlorurus* is the sole representative; but this differs widely from the other *Pipilones*, and, in our opinion, is

better located in the genus *Embernagra*. The range of the dark forms of *Pipilo* is very extensive, embracing a large portion of the North-American continent, the outlying islands of Guadaloupe and Socorro, and spreading southward through Mexico to the highlands of Guatemala. The brown species, on the other hand, are much more restricted in their range, being confined to the South-western States and Mexico, beyond which they do not pass.

The species of both sections of *Pipilo* are by no means well defined, and several of them seem to pass by gradual steps one into the other.

American authors recognize two species of the black group, *P. erythrophthalmus* and *P. maculatus*, the former with two races and the latter with several. In treating of the Mexican forms we have found it necessary to admit four species; but we fully acknowledge that, in the case of *P. macronyx*, we have drawn the specific characters rather wide, and more species may be recognized when a larger series is examined.

The culmen of the bill of *P. maculatus* is slightly arched; the nostrils are margined above by a membrane; beneath the nostrils the bill is somewhat tumid; the tomia is angulated and somewhat undulated towards the end, close to which there is a distinct notch; the rictal bristles are short, but strong; the legs are moderately stout, the middle toe being about the same length as the tarsus; the hind claw is strong and moderately curved; the wings are short and much rounded, the third, fourth, and fifth quills are the longest, the second equalling the sixth; the tail is rounded.

In *P. fuscus* the feet are not so strong, and the claws are shorter and more curved, the bird being thus better suited for an arboreal life.

The changes of plumage from young to adult and from summer to winter, as well as those of sex, have not been carefully traced, especially in the *P. macronyx* group. Our materials do not help us much in this respect, and when they come to be examined the conclusions we have come to as to the limits of each species may have to be reconsidered.

a. *Caput nigrum, dorsum plus minusve maculatum, cauda plerumque albo terminata.*

1. Pipilo macronyx.

Pipilo macronyx, Sw. Phil. Mag. new ser. i. p. 434 [1]; Bp. Consp. Av. i. p. 487 [2]; Scl. & Salv. P. Z. S. 1869, p. 361 [3]; Salv. Cat. Strickl. Coll. p. 234 [4].

Pipilo virescens, Hartl. J. f. O. 1863, p. 228 [5].

Pipilo chlorosoma, Baird, N.-Am. B. ii. p. 105 [6].

Pipilo complexus, Ridgw. Auk, 1886, p. 332 [7].

Supra virente-fuscus; alis et cauda olivaceo limbatis; hujus rectricibus utrinque tribus externis ad apices et extima in pogonio externo viridi-albidis, illarum tectricibus omnibus viridi albo terminatis; capite nigricante-fusco, interscapulio fusco striato, plumis lateralibus quoque viridi-albo guttatis; subtus albus, hypochondriis et crisso castaneis; campterio alari flavissimo; rostro nigro, pedibus corylinis. Long. tota 8·7, alæ 4·0, caudæ 4·8, rostri a rictu 0·7, tarsi 1·2. (Descr. exempl. typ. ex Mexico. Mus. Cantabr.)

Hab. Mexico [5], Real del Monte, Temiscaltepec (*Bullock* [1]), Tezuitlan, State of Puebla (*Ridgway*), Oaxaca (*Boucard* [6]).

Of this species we have Swainson's two types before us, and four other specimens from Southern Mexico, including one sent to Mr. Sclater by Dr. Hartlaub as a type of *P. virescens*. These present very considerable differences in coloration, which have doubtless given rise to the many names bestowed upon the variations of plumage. The bird described by Swainson has very distinct yellowish-white spots on the wing-coverts and scapulars, and the sides of the interscapulium are similarly spotted. In *P. virescens* these spots are present on the wing-coverts, but absent from the interscapulium. In *P. chlorosoma* they are said to be absent altogether, as they are in one of Swainson's types and in another example in our collection. *P. complexus* is said to have a white spot on the throat and a rufous patch on the head. A specimen from Southern Mexico (*Boucard*) has the white spot very distinctly shown, and also white on the chin and white lores; it has also some rufous on the occiput. Another example has more rufous on the occiput, but not so much white on the throat; both have obvious characters of immaturity, and we have little doubt that Mr. Ridgway's name was founded on an immature specimen of *P. macronyx*. Another variable point is in the spots of the outer rectrices—in some (as in the type) the outermost exceeds an inch in length, in others they are quite evanescent, presenting a mere trace; so too with the length of the tail, which varies from 4·8 inches (type) to 4·3 inches.

Nothing has been recorded concerning this species in Mexico; but we find on a label attached to one of Swainson's types the following note, doubtless written by Bullock:—

"I have never seen this bird anywhere but between Mexico and San Miguel, nor is it found within five leagues of the capital. It is extremely tame and constantly in motion, and hides itself in thick bushes. Eye deep red and very small."

2. **Pipilo carmani.**

Pipilo carmani, Lawr. Ann. Lyc. N. Y. x. p. 7 [1]; Grays. Pr. Bost. Soc. N. H. xiv. p. 299 [2].
Pipilo maculatus, var. *carmani,* Baird, Brew., & Ridgw. N. Am. B. ii. p. 109 [3].
Pipilo erythrophthalmus, var. *carmani,* Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [4].

"Whole upper plumage, head, throat, and upper part of the breast olivaceous brown, with a reddish cast; there is a spot of white on the centre of the throat (this last character varies in size in different individuals); tail blackish brown, edged with olivaceous and crossed with almost obsolete dusky bars, the outer two feathers on each side with an irregular oval spot of white on their inner webs at the end; quills dark hair-brown, with greyish margins; the wing-coverts blackish brown, the greater and middle coverts, the scapulars, and the tertiaries spotted with white at their ends; lower part of breast and middle of abdomen white, sides broadly marked with bright ferruginous; upper mandible brownish black, the under paler; tarsi and toes light fleshy brown. Length $6\frac{1}{2}$ in.; wing $2\frac{3}{4}$; tail 3; bill $\frac{1}{2}$; tarsi 1."

Hab. Mexico, Socorro Island (*Grayson* [1 2]).

We have not seen specimens of this species, the description being that given by Mr. Lawrence.

P. carmani was discovered by Grayson in the island of Socorro during his visit there in 1867, an account of which was published in the fourteenth volume of the 'Proceedings of the Boston Society of Natural History.' He there says that this is an abundant species, found in all the thickets of the island; many of them took up their abode in his camp, picking up crumbs, and were as tame as domestic fowls; he adds that he found them feeding at times on small seeds of plants, but more frequently on the ground, scratching up dry leaves in search of insects; their notes he describes as rather feeble, slightly resembling those of *P. erythrophthalmus* of the Eastern States, a bird it also resembles in habits and general appearance.

P. carmani is placed by Ridgway as a variety of *P. maculatus*; but it may be at once distinguished by its small size and other characters, all of which must be reckoned of more importance as regards the position of this bird as a species, seeing how completely isolated its domicile is.

3. **Pipilo maculatus.**

Pipilo maculatus, Sw. Phil. Mag. new ser. i. p. 434[1]; Bp. Consp. Av. i. p. 487[2]; Scl. P. Z. S. 1858, p. 304[3]; 1859, p. 380[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552[5]; Scl. & Salv. P. Z. S. 1869, p. 361[6]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 22[7].

Pipilo oregonus, Salv. Ibis, 1866, p. 193[8]; Dugès, La Nat. i. p. 140[9].

Pipilo submaculatus, Ridgw. Auk, 1886, p. 332[10]?

Supra brunneus, capite toto nigricante, interscapulii plumis nigro striatis, et in pogonio externo nigro maculatis, tectricibus alarum et secundariis intimis albo notatis, campterio albo; caudæ rectricibus utrinque tribus externis ad apices, et extima in pogonio externo albis; subtus abdomine medio albo, hypochondriis et crisso læte castaneis; rostro nigro, pedibus corylinis. Long. tota 8·0, alæ 3·4, caudæ 4·0, rostri a rictu 0·65, tarsi 1·1. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mexico[2 6], Guanajuato (*Dugès*[9]), Real del Monte (*Bullock*[1]), plateau and alpine region of Vera Cruz[5], Cienguilla[7] (*Sumichrast*), Parada[3], Cinco Señores[4] (*Boucard*), Tezuitlan State of Puebla (*Diaz*[10]); Guatemala, Quezaltenango, Solola, Chimaltenango (*O. S. & F. D. G.*[8]).

We have before us a specimen from Swainson's collection marked "*Pipilo maculatus*, Sw. Syn. Mex. No. 45, Ward; ? if from Brazil or Mexico." This is evidently not the type of *P. maculatus*, which formed part of Bullock's collection, and came from Rio del Monte in Mexico; but being named by Swainson himself, we are doubtless justified in considering it more typical than any other specimen extant. It agrees with the description in every respect except that we should call the upper surface brown rather than olivaceous brown. With this specimen we have others agreeing very closely from Oaxaca and from the highlands of Guatemala. Sumichrast states that *Pipilo maculatus* is common on the plateau of Mexico, and it is also found in the alpine region in smaller numbers, never descending below 4600 feet; he adds that it nests upon the plateau. In Guatemala it is a common species in the highlands, at elevations varying from 6000 to 9000 feet; it frequents brushwood on the edges of the plains.

We have two skins from the vicinity of the city of Mexico acquired in 1867, concerning which, though referred to *P. maculatus*, we have always had some doubts as to whether they really belong to that species or not. They have a more olive shade on the upper plumage, and the wing-spots a greenish tint, and the edgings of the wings and tail are more olive-coloured than in more typical *P. maculatus*. In one specimen the campterium is yellow, in the other just tinted with that colour. We sadly require evidence of the changes of pluamge between adult and young and breeding and winter dress in this and the allied species; but we believe these specimens to be in the breeding-plumage of *P. maculatus*, those browner in colour and the spots purer white being in winter dress.

We have placed *P. submaculatus* as a synonym of *P. maculatus*, as the differences relied upon seem all represented in the series before us. In view of the obvious variations, probably of season and sex, noticeable in this species, we much doubt if the specific distinctness of *P. submaculatus* can be maintained.

4. Pipilo megalonyx.

Pipilo megalonyx, Baird, B. N. Am. p. 515, t. 73 [1]; Mex. Bound. Surv., Zool. ii. Birds, p. 17 [2].
Pipilo maculatus, var. *megalonyx*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 113 [3].
Pipilo maculatus megalonyx, Coues, Key N. Am. B. ed. 2, p. 397 [4].

P. maculato certe persimilis, sed dorso postico nigricante cinereo haud brunneo forsan distinguendus.

Hab. North America, Lower California, valleys of the Gila and Rio Grande [3 4].—Mexico, San Pasqual (*Schott* [2]), Saltillo (*Couch* [2]).

We have but little to say about this bird, which seems to be only doubtfully distinct from *P. maculatus*, and occurs along our northern frontier both in Arizona and in the valley of the Rio Grande.

b. *Caput fuscum, dorsum immaculatum, cauda unicolor haud albo terminata.*

5. Pipilo fuscus.

Pipilo fuscus, Sw. Phil. Mag. new ser. i. p. 434 [1]; Bp. Consp. Av. i. p. 486 [2]; Dugès, La Nat. i. p. 140 [3]; Scl. & Salv. P. Z. S. 1869, p. 361 [4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [5]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 121 [6].
Pipilo fuscus, var. *crissalis*, Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [7].
Pipilo mesoleucus, Baird, Pr. Ac. Phil. 1854, p. 119 [8]; Mex. Bound. Surv., Zool. ii. Birds, p. 18 [9].
Pipilo fuscus, var. *mesoleucus*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 125 [10].
Pipilo fuscus mesoleucus, Belding, Pr. U. S. Nat. Mus. vi. p. 343 [11]; Coues, Key N. Am. B. ed. 2, p. 397 [12].

Supra griseo-fuscus, vertice vix rufescentiori; alis et cauda saturatioribus; subtus dilutior, abdomine medio albido, imo cum crisso et gutture ferrugineis, hoc nigricante striato; loris et ciliis albidis; rostro corneo, pedibus corylinis. Long. tota 8·0, alæ 3·8, caudæ 4·0, rostri a rictu 0·7, tarsi 1·0. (Descr. exempl. ex Mexico prope urbem. Mus. nostr.)

Hab. North America, New Mexico, Arizona, Texas [10 12].—Mexico [2 6], Santa Catarina in

Nuevo Leon (*Couch* [9]), Los Nogales (*Kennerly* [9]), Guaymas (*Belding* [11]), Temiscaltepec (*Bullock* [1]), Guanajuato (*Dugès* [3]), Guadalajara (*Grayson* [7]), valley of Mexico (*le Strange* [4]), plateau and alpine region of Vera Cruz (*Sumichrast* [5]), Cimapan (*Deppe*).

We have the type of Swainson's *Pipilo fuscus* before us; it agrees with other Mexican specimens, the species being apparently confined in its range to Mexico and the bordering States on the north, the allied forms *P. crissalis* and *P. albigula* being fairly definite. Sumichrast says of this species that it is common in the plateau of Mexico, where it breeds; it is also found in smaller numbers in the alpine region, but it does not descend below 4000 feet [5]. Grayson found it abundantly about Tepic and in many places on the road to Guadalajara. It does not approach the sea-coast nearer than Tepic, where it is a constant resident [7].

The bird described by Prof. Baird as *P. mesoleucus* is said to be found in the upper Rio Grande valley, that of the Gila and Colorado [8], and at Guaymas in the Gulf of California. Specimens from these countries have the occiput slightly more rufous than examples from Mexico; but in this respect the type is intermediate, and we think all should be united under the name of *P. fuscus*. *P. albigula* is very nearly allied, but has less rufous on the lower abdomen. *P. crissalis* is distinct in having no white on the middle of the abdomen.

6. **Pipilo rutilus.**

Tanagra rutila, Licht. Preis-Verz. Mex. Vög. p. 2; cf. J. f. O. 1863, p. 57 [1].

Pipilo rutilus, Scl. & Salv. Nomencl. Av. Neotr. p. 33 [2].

Pipilo albicollis, Salv. P. Z. S. 1858, p. 304 [3]; 1859, p. 380 [4]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 22 [5].

Supra fuscus fere unicolor; alis indistincte albido bifasciatis; subtus albus, pectore cinereo variegato; gutture litura ferruginea transfasciato; ventre imo et crisso ferrugineis; rostro corneo, pedibus corylinis. Long. tota 7·5, alæ 3·3, caudæ 3·8, rostri a rictu 0·6, tarsi 0·9. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

Hab. Mexico (*Deppe* [1]), San Miguel de las Peras [3], Totontepec [4] (*Boucard*), Huitzo (*Sumichrast* [5]).

Though briefly described by Lichtenstein in his list of the Mexican birds collected by Deppe, we have no doubt that this species is identical with that subsequently described by Mr. Sclater as *Pipilo albicollis* [3]; it has since been regarded by American authors as an extreme variety of *P. fuscus*, from which we understand that they anticipate links may be found connecting the two birds. In this view we cannot agree, for we consider *P. rutilus* to be a thoroughly segregated form, to be distinguished by its much whiter under surface, by the peculiar ferruginous bar across the throat, and by the colouring of the chest.

In its range it appears to be confined to a limited district in Southern Mexico, for

we have no certain information of its existence outside the State of Oaxaca. Of its habits nothing has been recorded.

EMBERNAGRA.

Embernagra, Lesson, Traité d'Orn. p. 465 (1831).

We are acquainted with eleven species of this genus, of which all but two are concentrated in Mexico, Central America, and the north-western portion of South America. The genus is unrepresented in Guiana, the basin of the Amazons, and Eastern Brazil; but two species, including the type of the genus, occur in the Argentine Republic, Bolivia, and Patagonia. These latter differ rather widely from their more northern congeners, and may readily be distinguished by their larger size, more elongated form, and by the absence of markings on the upper part of the head.

Two Mexican species pass beyond the northern frontier, but the other five species of our fauna do not range beyond its limits, though we find two species, *E. conirostris* and *E. chrysoma*, both nearly related to *E. striaticeps*, in Colombia and Ecuador respectively.

Embernagra striaticeps has the general upper plumage of an olivaceous colour, and this character pervades all the members of the genus; the head is marked by stripes on either side of the vertex and others through each eye: *E. chlorura* and the southern species *E. platensis* and *E. olivascens* depart from the rest in this respect, *E. chlorura* standing alone in having a russet crown; the under plumage of all is white, with grey chest and flanks, the latter usually tinged with olivaceous. The wings are short and rounded, the primaries but little shorter than the longest secondaries; the third, fourth, and fifth quills are the longest in the wing, the second equalling the eighth, the first being shorter than any of the rest; the bill is moderately stout, and the tomia of the maxilla but slightly angulated; beneath the exposed nostril the bill is somewhat tumid; the rictal bristles are short but strong; the legs are strong, being suitable for birds of terrestrial habits; the middle toe and claw are a little longer than the tarsus.

Embernagra seems allied to *Pipilo*, but its less elongated form and very different coloration seem to justify its separation.

a. *Pileus aut olivaceus aut cinereus utrinque brunneo aut nigro late marginatus.*

a'. *Pileus utrinque brunneo marginatus.*

1. Embernagra rufivirgata.

Embernagra rufivirgata, Lawr. Ann. Lyc. N. Y. v. p. 112, t. 5. f. 2 [1]; Baird, Mex. Bound. Surv., Zool. ii. Birds, p. 16 [2]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 47 [3]; Sennett, Bull. U. S. Surv. iv. p. 22; v. p. 394 [4]; Ridgw. Pr. U. S. Nat. Mus. i. p. 248 [5]; Coues, Key N. Am. B. ed. 2, p. 398 [6].

Supra olivacea, stria utrinque verticali et altera per oculos rufescentibus; loris albidis; capitis lateribus grisescentibus; subtus alba, pectore cinerascente, hypochondriis et crisso pallide fuscescentibus, campterio alari

flavo; rostri maxilla rufescente-corneo, mandibula flavicante; pedibus pallide corylinis. Long. tota 6·0, alæ 2·6, caudæ 2·6, rostri a rictu 0·6, tarsi 0·95. (Descr. maris ex Texas. Mus. Smiths. no. 70596.)

Hab. North America, Rio Grande valley.—Mexico, Nuevo Leon (*Couch* [2]).

This species was first described as long ago as 1851 by Mr. Lawrence from specimens obtained by Capt. J. F. M'Cown in the valley of the Rio Grande. Subsequent observations tend to show that its range is nearly restricted to that district. It has been stated to extend to Southern Mexico; but Mr. Ridgway has shown that the bird from that region is separable by fairly pronounced characters, though his giving it a third name indicates that he expects intermediate forms to be extant connecting the two.

Mr. Sennett and Dr. Merrill had abundant opportunity of observing *E. rufivirgata* in the valley of the Lower Rio Grande at Lomita and elsewhere. They found a number of its nests and eggs; the former are domed, and often placed in the heart of a bush from two to five feet from the ground; the nest is nearly round, and made of dried stems of weeds, pieces of bark, grasses, and leaves, sometimes with a little hair for lining, but more frequently without. The eggs, four in number, are of a pure dull white colour.

2. **Embernagra crassirostris.**

Embernagra rufivirgata, β. crassirostris, Ridgw. Proc. U. S. Nat. Mus. i. p. 248 [1].

Embernagra rufivirgata, Scl. P. Z. S. 1856, p. 306 [2]; 1859, p. 380 [3]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [4].

Supra sordide olivacea; capitis lateribus, pectore, hypochondriis et crisso fuscescentibus, corpore subtus reliquo albicante, campterio alari flavicante; stria utrinque verticali et altera utrinque per oculos rufescentibus; vertice ipso dorso concolori; rostro corneo, mandibula ad basin flavicante; pedibus pallide corylinis. Long. tota 5·4, alæ 2·5, caudæ 2·3, rostri a rictu 0·6, tarsi 0·95. (Descr. exempl. ex Mexico merid. Mus. nostr.)

Hab. Mexico, Cordova (*Sallé* [2]), temperate and hot regions of Vera Cruz (*Sumichrast* [4]), Playa Vicente (*Boucard* [3]).

The *Embernagra* of Southern Mexico differs from *E. rufivirgata* in having a much stouter bill, the flanks deep drab or raw-umber brown, and the crissum deep fulvous [1]. The bird is altogether of a stouter build.

Sumichrast states that this species inhabits the hot and temperate regions, and is found in the latter as high as 4000 feet above the sea [4].

3. **Embernagra superciliosa.**

Embernagra superciliosa, Scl. P. Z. S. 1864, p. 582 [1]; Frantz. J. f. Orn. 1869, p. 301 [2].

Embernagra rufivirgata, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 22 [3].

Supra olivascens; capite toto ochraceo-cinerascenti; stria utrinque verticali a rostro ad nucham transeunte, altera utrinque per oculos ducta nigricante-rufescentibus; subtus sordide cinerascente-albida; pectore et hypochondriis saturatioribus; campterio flavissimo; rostro corneo, mandibula flavicante, pedibus pallide

corylinis. Long. tota 5·0, alæ 2·4, caudæ 2·0, rostri a rictu 0·55, tarsi 0·9. (Descr. exempl. typ. ex Bebedero, Costa Rica. Mus. nostr.)

Hab. Mexico, Hamelula, isthmus of Tehuantepec (*Sumichrast* [3]).—Costa Rica, Nicoya (*Arcé* [1], *v. Frantzius* [2]).

In our original description of this species we compared it with *E. chloronota*, but we now think that *E. rufivirgata* is its nearer ally. This is shown by the colour of the stripes on either side of the vertex being dark rufous and not black; but the stripes of the head are much more conspicuous than in the allied form, and by this means *E. superciliosa* may readily be recognized.

The original specimen of this bird was obtained by Arcé on the shores of the Gulf of Nicoya in Western Costa Rica [1]. Though we have seen other examples from that country, the bird is by no means common.

The species appears again on the isthmus of Tehuantepec, where Sumichrast obtained specimens, but we have no record of it from any intermediate place.

b′. *Pileus cinereus utrinque nigro marginatus.*

4. Embernagra chloronota.

Embernagra chloronota, Salv. P. Z. S. 1861, p. 202 [1]; Ibis, 1861, p. 353 [2]; Boucard, P. Z. S. 1883, p. 444 [3].

Supra olivacea; capite cinereo, stria utrinque verticali et altera utrinque per oculos nigris; subtus cinerea, gula et abdomine medio albis, hypochondriis et crisso olivaceo indutis, campterio flavissimo; rostro nigro, mandibula flavicante, pedibus pallide corylinis. Long. tota 5·57, alæ 2·6, caudæ 2·4, rostri a rictu 0·6, tarsi 1·0. (Descr. exempl. typ. ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico, Chable in Yucatan (*Gaumer* [3]); British Honduras (*Blancaneaux*); Guatemala, Chisec, Choctum (*O. S. & F. D. G.* [1 2]).

This species was described from specimens obtained by us in the forest-country north of Coban in Vera Paz [1], and we have since received skins both from British Honduras and Yucatan. From the latter country Mr. Gaumer sent us, through M. Boucard, a single example, together with skins of the closely allied *E. verticalis.*

E. chloronota is a much smaller bird than its near ally *E. striaticeps*, rather duller olivaceous on the back, and has a less clear grey chest. *E. conirostris* of Colombia and Venezuela is another near ally, but is a much greyer bird, especially on the back. Its relationship to *E. verticalis* is described below.

The true *E. chloronota* has a very restricted range, and is probably confined to the promontory of Yucatan and the forest country spreading southwards to the base of the higher mountains of Vera Paz. Its range in altitude probably does not much exceed 1500 or 2000 feet.

5. Embernagra verticalis.

Embernagra rufivirgata, Lawr. Ann. Lyc. N. Y. ix. p. 201 (nec Lawr.) [1].

Embernagra rufivirgata, γ. verticalis, Ridgw. Proc. U. S. Nat. Mus. i. p. 248 [2].

Embernagra chloronota, Boucard, P. Z. S. 1883, p. 444 [3] (partim).

E. chloronotæ similis, sed supra cum cauda fusco-olivaceis, stria utrinque verticali ad nucham nigra rufescente intermixta, stria postoculari vix obvia, pectore albicante vix griseo tincto, rostro graciliori distinguenda. Long. tota 6·0, alæ 2·4, caudæ 2·6, rostri a rictu 0·65, tarsi 0·9. (Descr. exempl. ex Yucatan septr. Mus. nostr.)

Hab. Mexico, Merida in Yucatan (*Schott* [1 2], *Gaumer* [3]).

When describing this *Embernagra* Mr. Ridgway compared it with *E. rufivirgata*, of which he considered it to be a geographical race. It is, however, with *E. chloronota* that its relationship lies, sufficiently indicated by its having the median vertical stripe ashy instead of olivaceous. At one time we considered it to be inseparable from *E. chloronota*, but having recently received a specimen of the true *E. chloronota* from Chable, we think that the differences observable in *E. verticalis* must be regarded as more than those of race, seeing that both birds are found coexisting in the same district.

Mr. Gaumer speaks of this bird as abundant in all parts of Yucatan, and as living on the ground scratching for its food.

6. Embernagra striaticeps.

Embernagra striaticeps, Lafr. Rev. Zool. 1843, t. 152 [1]; 1852, p. 62 [2]; Scl. & Salv. P. Z. S. 1864, p. 352 [3]; Cass. Pr. Ac. Phil. 1865, p. 170 [4]; Lawr. Ann. Lyc. N. Y. viii. p. 181 [5]; ix. p. 103 [6]; Salv. P. Z. S. 1867, p. 142 [7]; 1870, p. 190 [8]; 1883, p. 422 [9]; Frantz. J. f. Orn. 1869, p. 301 [10]; Nutt. & Ridgw. Proc. U. S. Nat. Mus. vi. p. 401 [11].

Embernagra conirostris, Scl. P. Z. S. 1856, p. 143 [12]; Lawr. Ann. Lyc. N. Y. vii. p. 332 (nec Bp.) [13].

E. chloronotæ valde similis, sed major; colore supra paullo clariori, et subtus pectore pallidiori griseo distinguenda. Long. tota 6·7, alæ 3·2, caudæ 3·0, rostri a rictu 0·7, tarsi 1·15. (Descr. maris ex Panama. Mus. nostr.)

Hab. Nicaragua, Los Sabalos (*Nutting* [11]), Greytown (*Holland* [5]); Costa Rica (*v. Frantzius* [4 10]), Angostura (*Carmiol* [6]); Panama, David (*Bridges* [12], *Hicks*), Bugaba [8], Chitra [8], Cordillera de Tolé [7], Calovevora [8], Santa Fé [7] (*Arcé*), Lion Hill (*M'Leannan* [3 13]), Obispo (*O. S.*), Panama city (*A. H. Markham* [9]).

The late Baron Lafresnaye described this species from specimens obtained near Panama [1], whence we have also received many examples agreeing with the description. From Panama *E. striaticeps* has been traced northwards as far as Nicaragua, and it is by no means uncommon in the State of Panama and in Costa Rica.

The species most nearly allied to it are *E. conirostris* of Colombia and Venezuela and *E. chrysoma* of Western Ecuador. From the former of these it may be readily distinguished by its more olivaceous colour above, and from the latter by the more restricted extent of the yellow on the wing in the neighbourhood of the carpal joint.

We have few notes of the habits of this species, but it doubtless inhabits the edges of low-lying tropical forests, living on or near the ground. Mr. Nutting says it is abundant near Los Sabalos in Nicaragua, where it frequents brush-heaps at the edge of the forest [11].

b. *Pileus medius castaneus.*

7. Embernagra chlorura.

Fringilla chlorura, Aud. Orn. Biogr. v. p. 336 [1].

Pipilo chlorurus, Baird, Brew., & Ridgw. N. Am. B. ii. p. 131 [2]; Sennett, Bull. U. S. Geol. Surv. v. p. 394 [3]; Coues, Key N. Am. B. ed. 2, p. 398 [4].

Embernagra chlorura, Lawr. Mem. Bost. Soc. N. H. ii. p. 277 [5].

Pipilo rufipileus, Lafr. Rev. Zool. 1848, p. 176 [6]; Bp. Consp. Av. i. p. 487 [7].

Embernagra blandingiana, Cass. B. Cal. & Tex. p. 70, t. 12 [8]; Dugès, La Nat. i. p. 140 [9].

Supra sordide olivacea; alis et cauda extus viridescentibus, campterio flavo, capite summo læte castaneo; fronte, capitis lateribus, corpore toto subtus (præter gulam, abdomen medium et crissum alba) cinereis, loris et stria rictali albis; rostro corneo, mandibula ad basin albicante (vestitu æstivali omnino nigro), pedibus corylinis. Long. tota 6·6, alæ 3·1, caudæ 3·2, rostri a rictu 0·55, tarsi 0·95. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. North America, South-western States [4], Texas [3].—Mexico [6 7], Guanajuato (*Dugès* [9]), Mazatlan (*Grayson* [5]).

According to Grayson, this species is a winter visitor to the neighbourhood of Mazatlan, where it is numerous in some localities, occurring from December to April. Its notes, he says, have a faint resemblance to those of the Towhee Finch (*Pipilo erythrophthalmus*). It passes much of its time among the weeds in old fields and bushy places, feeding upon various kinds of seeds, including those of the silk-cotton [5]. Its range does not extend to the southern parts of Mexico, Guanajuato being the limit recorded in this direction [9].

In Arizona *E. chlorura* occurs as a spring and autumn migrant, remaining neither in summer nor winter. Its summer resort, where it breeds, is the Rocky Mountains and the eastern slopes of the Sierra Nevada. Here Mr. Ridgway describes it as a characteristic species, and one of the most abundant of the Fringillidæ. He considers its powers of song of high merit. The nest (not described by Brewer) is placed from 18 inches to 2 feet from the ground, among the thick bushes of a species of *Symphoricarpus.* The eggs are an exact oval, white, with a bluish tint, and profusely marked with a cloud of fine dots of a pinkish drab [2].

SPIZA.

Spiza, Bonaparte, Journ. Ac. Phil. iv. p. 1824; Ridgw. Pr. U. S. Nat. Mus. iii. p. 3; Coues, Key N. Am. B. ed. 2, p. 387.

Euspiza, Bonaparte, Saggio di una Distr. Meth. An. Vert. p. 141 (Aggiunte 1832).

It seems to be now generally agreed by ornithologists in the United States that the

name *Spiza* should be used instead of *Euspiza*, both being introduced by Bonaparte, and based apparently on the same type, *S. americana*.

Spiza is practically a monotypic genus, for *S. townsendi* is only known from a single specimen, the status of which has given rise to much perplexity. *S. americana*, on the other hand, is a very common, widely spread species, which breeds in the States, and migrates southwards in winter.

The bill in *S. americana* is stout, the culmen slightly arched and produced backwards to the forehead, the tomia of the mandible is angular and anteriorly slightly undulating; the nostrils are deeply sunk in the nasal fossa, and have a supervening membrane. The wings are long and pointed, the first primary being the longest, the second and third nearly equalling the first. The tail is short and nearly even. The tarsus and middle toe are subequal; the lateral toes are also subequal, but do not reach to the base of the middle claw.

1. Spiza americana.

Emberiza americana, Gm. Syst. Nat. i. p. 872 [1].

Euspiza americana, Scl. P. Z. S. 1856, p. 142 [2]; 1857, p. 205 [3]; Scl. & Salv. Ibis, 1859, p. 18 [4]; P. Z. S. 1864, p. 353 [5]; 1870, p. 836 [6]; 1879, p. 508 [7]; Cass. Pr. Ac. Phil. 1860, p. 140 [8]; Lawr. Ann. Lyc. N. Y. vii. p. 298 [9]; viii. p. 181 [10]; ix. p. 103 [11]; Bull. U.S. Nat. Mus. no. 4, p. 21 [12]; Mem. Bost. Soc. N. H. ii. p. 277 [13]; Dresser, Ibis, 1865, p. 490 [14]; Salv. P. Z. S. 1867, p. 142 [15]; 1870, p. 190 [16]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [17]; Frantz. J. f. Orn. 1869, p. 301 [18]; Wyatt, Ibis, 1871, p. 328 [19]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 65 [20]; Sennett, Bull. U. S. Geol. Surv. iv. p. 19 [21]; v. p. 392 [22].

Spiza americana, Ridgw. Proc. U. S. Nat. Mus. iii. p. 3 [23]; Coues, Key N. Am. B. ed. 2, p. 387 [24].

Supra griseo-fusca, interscapulii plumis medialiter nigris lateraliter brunneis, nucha et capitis lateribus cinereis, vertice antica oleagineo lavato; superciliis, macula gulari, pectore, abdomine medio anticoque et subalaribus flavis; alis et cauda fuscis, secundariis extus et tectricibus omnibus minoribus læte castaneis; gula antica et abdomine imo albis, gula postica nigra; rostro corneo, pedibus fuscis. Long. tota 6·3, alæ 3·3, caudæ 2·5, rostri a rictu 0·65, tarsi 0·9. (Descr. exempl. ex Angostura, Costa Rica. Mus. nostr.)

♀ mari similis, macula gulari nigra nulla, sed pectore nigro striato, tectricibus alarum fusco limbatis haud castaneis &c. distinguenda.

Hab. North America, Atlantic States to border of Central Plains [20], Texas [14 21 22], Arizona [24].—Mexico, Mazatlan (*Grayson* [13]), State of Vera Cruz in winter (*Sumichrast* [17]), San Andres Tuxtla (*Sallé* [3]), Jalapa (*de Oca*), Juchitan, Guichicovi, Tehuantepec city (*Sumichrast* [12]), Jolbox Island, Mugeres Island, Cozumel Island, coast of Yucatan (*G. F. Gaumer*); British Honduras (*Blancaneaux*), Half-Moon Cay (*O. S.*); Guatemala (*Skinner* [4]), Volcan de Agua above San Diego, Retalhuleu, Huamuchal (*O. S. & F. D. G.*); Honduras, Ruatan Island (*G. F. Gaumer*), San Pedro (*G. M. Whitely* [6]); Nicaragua, Greytown (*Holland* [10]); Costa Rica (*v. Frantzius*), Tabacales (*v. Frantzius* [11]), San José, Dota, Angostura (*Carmiol* [11]), Nicoya (*Arcé*); Panama, David (*Bridges* [2], *Hicks*), Chitra (*Arcé* [16]), Lion Hill (*M'Leannan* [5 9]), Paraiso Station (*Hughes*), Turbo (*Wood* [8]).—Colombia [7 19]; Venezuela.

This bird is a winter visitant to Mexico and Central America, occurring at many points in the former country, even as far westwards as Mazatlan, where, however, Grayson tells us it is rare, only two specimens having been procured by him, which were shot in the month of August [13]. In Guatemala we but seldom met with it, and only in localities lying near the coast of the Pacific ocean or on the mountains sloping in that direction. But on the coast of Yucatan and thence to Honduras, especially on the islands from Cape Catoche to Ruatan, it would appear to be very abundant, Mr. Gaumer having recently sent us specimens from all the islands he visited during a voyage from Yucatan to Ruatan. Being thus common on this coast, it is somewhat strange that it has not been recorded from Cuba, Dr. Gundlach being silent as to its presence there.

S. americana frequents grassy places, and its notes are described as unmusical. The nest is said by some observers to be placed a little above the ground in a bush of some sort, others say that it is placed on the ground; it is formed of coarse grasses and stems, and lined with similar finer materials. The eggs are of a uniform light blue colour.

CALAMOSPIZA.

Calamospiza, Bonaparte, Comp. List, p. 30 (1838); Baird, Brew., & Ridgw. N. Am. B. ii. p. 60; Coues, Key N. Am. B. ed. 2, p. 386.

A monotypic genus containing the single species *C. bicolor*, an inhabitant of the more arid portions of Central North America and similar places in Northern and Central Mexico.

Calamospiza is usually placed next *Spiza*, to which, doubtless, it has a remote relationship, but the peculiar black colouring of the male and the great diversity of the sexes, the gregarious habits of the bird, and some structural characters all point to its isolation.

The bill is stout, the culmen turgid towards its base, the nostrils being deeply sunk in the nasal fossa; the tomia is angulated and rather deeply constricted beyond the angle, between which and the constriction is a denticular process; the rictal bristles are strong. The wing is long and pointed, the first to the fourth quills being the longest; the secondaries are long, and reach almost to the wing-tip. The feet are stout, the middle toe and tarsus being subequal. The hind claw is short and not straightened.

1. Calamospiza bicolor.

Fringilla bicolor, Towns. Journ. Ac. Phil. vii. p. 189 [1].

Calamospiza bicolor, Baird, Mex. Bound. Surv. ii., Birds, p. 16 [2]; Dresser, Ibis, 1865, p. 490 [3]; Dugès, La Nat. i. p. 140 [4]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 61 [5]; Sennett, Bull. U. S. Geol. Surv. v. p. 391 [6]; Belding, Pr. U. S. Nat. Mus. vi. p. 343 [7].

Calamospiza melanocorys, Stejn. Auk, ii. p. 49 [8]; Check-List N. A. B. p. 290 [9].

Nigra; secundariis extus et tectricibus alarum intermediis albis, caudæ rectricibus duabus externis albo in

52

pogonio interno terminatis, crisso albo intermixto; rostro plumbeo, pedibus corylinis. Long. tota 6·3, alæ 3·5, caudæ 2·7, rostri a rictu 0·7, tarsi 0·95. (Descr. maris ex Am. septr. Mus. nostr.)

♀ supra fusca nigricante-fusco striata, superciliis indistincte albidis; subtus alba fusco striata, hypochondriis brunnescentibus; alis fusco-nigris, remigibus extus anguste albido limbatis, tectricibus intermediis cervino-albis. (Descr. exempl. ex Mexico. Mus. Brit.)

Hab. North America, Central Plains to Rocky Mountains, Texas [3].—Mexico, Sonora, Espia (*Kennerly* [2]), Guaymas (*Belding* [7]), Guanajuato (*Dugès* [4]).

This peculiar bird is only found within our limits along the northern frontier [2] and southwards through Central Mexico to Guanajuato [4]. In the States it is a well-known species from the high central plains to the Rocky Mountains, and thence it occurs more sparingly to the Pacific Ocean and to Lower California.

In Sonora and at Espia the naturalists of the U. S. Boundary Survey state [2] that *C. bicolor* occurred in large flocks in the valley of the Rio Grande in the early morning and the members of which feed in the hills during the greater part of the day amongst bushes, seeds being their apparent food.

The notes of *C. bicolor* are described as very pleasing, and when singing the male is wont to mount in the air after the manner of the Sky-Lark.

Its nest is placed on the ground, and constructed of loosely arranged dry grasses. The eggs are of a uniform light blue like those of *Spiza americana*.

Dr. Stejneger's name *melanocorys* [8] for this bird has recently been adopted by North-American ornithologists [9], Townsend's title *Fringilla bicolor* being supposed to clash with *Fringilla bicolor* of Linnæus. It may have done so between the years 1837 and 1838, but the difficulty was wholly removed when Bonaparte proposed the genus *Calamospiza* for the present bird in the latter year. We are not aware that any difficulty on this score has occurred in using the names *Calamospiza bicolor* and *Phonipara bicolor* for two totally distinct Finches for nearly fifty years, and none is likely to arise that we know of, unless, indeed, ornithologists in a synthetic mood merge *Calamospiza* and *Phonipara* in the same genus: *melanocorys* will then come in usefully, but in the meantime *bicolor* answers its purpose.

CALCARIUS.

Calcarius, Bechstein, Tasch. Vög. Deutschl. i. p. 130 (1803); Stejn. Proc. U. S. Nat. Mus. v. p. 23; Check-List N. Am. B. p. 263.

Plectrophanes, Meyer, Vög. Liv- u. Estl. p. xii.

Centrophanes, Kaup, Entw. eur. Thierw. p. 158.

That *Calcarius* is the right generic name to employ for the Lapland Bunting, *C. lapponicus* (Linn.), and its allies, we think is still open to doubt, for Bechstein first used this name in a sectional or subgeneric sense. For many years both *Plectrophanes* and *Centrophanes* have been largely employed both in Europe and America as the generic name for *C. lapponicus* and its allies.

The genus contains three, or, if *Rhynchophanes maccowni* be included, four, well-marked species, of which *C. ornatus* alone occurs within our limits in Central Mexico.

C. ornatus has a rather slender bill with sharp tomia with a well-developed angle, near which are two deep furrows, the interval between them being produced into a small dentate process; the culmen is rather high towards the base, but sinks to the forehead; the nasal fossa is large and open, the nostrils are situated at the lower extremity, with a very distinct membrane above them. The feet are moderate, but the hind toe is furnished with a long slightly depressed claw. The wings are long and pointed, the first primary being the longest, the second, third, and fourth gradually falling short of it; the longest secondaries slightly exceed the shortest primaries. The tail is slightly forked, the feathers rather narrow and for the most part white at the base.

1. Calcarius ornatus.

Plectrophanes ornatus, Towns. Journ. Ac. Phil. vii. p. 189[1]; Baird, Brew., & Ridgw. N. Am. B. i. p. 520[2]; Coues, B. N. W. p. 122[3].

Centrophanes ornatus, Coues, Key N. Am. B. ed. 2, p. 358[4].

Plectrophanes melanomus, Baird, B. N. Am. p. 436, t. 74. f. 2[5]; Scl. P. Z. S. 1860, p. 251[6]; 1864, p. 174[7]; Dresser, Ibis, 1865, p. 486[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551[9]; Allen, Bull. Mus. Comp. Zool. iii. p. 135[10].

Plectrophanes ornatus, var. *melanomus*, Baird, Brew., & Ridgw. N. Am. B. i. p. 521[11].

Calcarius ornatus, Check-List N. A. B. p. 263[12].

Supra dorso toto nigricante-fusco, plumis singulis extus pallide fusco limbatis; pileo toto nigro, macula nuchali alba, cervice postica castanea; loris, capitis lateribus et gula tota albis; stria postoculari et abdomine toto (præter partem imam et crissum album) nigris; alis fusco-nigris fusco extus limbatis, humeris et tectricibus minoribus nigris; cauda fusca, rectricibus duabus utrinque externis (præter apices in pogonio tantum externo) albis, reliquis (præter duas medias) ad basin plus minusve gradatim albis; rostro corneo, tomiis et mandibula pallidis, pedibus corylinis. Long. tota 5·3, alæ 3·4, caudæ 2·3, rostri a rictu 0·55, tarsi 0·75. (Descr. exempl. ex Mexico. Mus. nostr.)

♀ supra mari similis, sed capite, nucha et cervice postica dorso concoloribus; subtus isabellina, hypochondriis fusco vix striatis; stria utrinque rictali indistincte fusca. (Descr. exempl. ex Mexico. Mus. nostr.)

Av. juv. ♀ similis, pectore et hypochondriis distincte fusco maculatis.

Hab. North America, plains of the interior, Texas[8].—Mexico (*de Saussure*[6]), valley of Mexico (*White*[7]), plateau of Vera Cruz (*Sumichrast*[9]), Orizaba (fide *Sallé*[6]).

This species is subject to a great seasonal variation, the bird described above being, we believe, in autumnal plumage, when the black of the breast and head is nearly pure. In the breeding-dress the feathers of the abdomen are edged with sienna, and there are other differences in the colour of the lesser wing-coverts. Birds in this dress are the *P. melanomus* of Baird, which Mr. Allen[10], endorsed by Dr. Coues[3], has shown to be but a state of plumage of *P. ornatus*.

According to Sumichrast[9] this species is one of the native birds of the State of Vera Cruz in Mexico, from which we may infer that it breeds in that country. He says that its usual abode is on the great plains of the plateau of Mexico, and from thence it descends occasionally to the neighbourhood of Orizaba (alt. 4000 feet)[9]. Mr. Sclater

records it from this locality [6], and Mr. White procured it from the vicinity of the city of Mexico [7].

Dr. Coues gives an excellent account of *C. ornatus* in his 'Birds of the North West' [3], from which it would appear that it is an abundant and characteristic species of the Missouri region of the United States, and that it is found far north in the interior of the British possessions. It breeds on the ground, making a slight nest composed of dry grass and stems of small plants. The eggs are white, blotched and streaked with rusty colour.

Rhynchophanes maccowni is casually mentioned in the recently published 'Check-List of North-American Birds' as occurring in Mexico, but we lack authority for the statement. Dr. Coues, writing in 1874 (B. N. W. p. 125), says he had no account of its occurrence in Mexico, nor have we at the present time. As this bird is found in Texas its occasional presence in Mexico is very probable.

CARPODACUS.

Carpodacus, Kaup, Ent. eur. Thierw. p. 161 (1829); Baird, Brew., & Ridgw. N. Am. B. i. p. 459; Coues, Key N. Am. B. ed. 2, p. 346.

Carpodacus, including the subgenera *Propasser* and *Pyrrhoplectes*, contains about fifteen species. These are spread over the whole of the Palæarctic and Nearctic Regions, being well represented in Central Asia and the slopes of the Himalayas. Five species are found in the Nearctic Region, of which three occur within the limits of Mexico, where they are restricted to the higher plains of the interior or the extreme northern frontier.

Carpodacus cassini, which belongs to the same section of the genus as the better-known *C. purpureus*, has the culmen of the bill nearly straight, the tomia is nearly straight, the bill being somewhat turgid below the nostrils; these are round with a membrane along the upper edge, a tuft of short decurved bristly feathers covers the nasal fossa. The feet are weak, the tarsus being shorter than the middle toe and claw. The wings are long and pointed, the first, second, and third quills being subequal and forming the wing-point; the longest secondaries are a little longer than the shortest primaries. The tail is much shorter than the wing and moderately forked.

The bill of *C. hæmorrhous* has the culmen much more curved, and there is a small dentate process at the angle of the tomia. The nostrils are rather more exposed, the short decurved feathers proceeding from the base of the forehead being shorter. The tail is more even and the feathers narrower.

1. Carpodacus cassini.

Carpodacus cassini, Baird, Pr. Ac. Phil. 1854, p. 119 [1]; Scl. & Salv. P. Z. S. 1869, p. 362 [2]; Baird, Brew., and Ridgw. N. Am. B. i. p. 460 [3]; Coues, B. N. W. p. 106 [4]; Key N. Am. B. ed. 2, p. 347 [5]; Check-List N. Am. B. p. 256 [6].

Supra dorso medio fusco, plumis singulis obscure fusco-rosaceo limbatis, uropygio rosaceo, capite toto summo læte saturate rosaceo; alis et cauda fuscis, illis obscure rosaceo marginatis, superciliis indistinctis; genis et corpore subtus antico pallide rosaceis, regione parotica obscuriori, abdomine postico et crisso albidis; rostro fusco, mandibula ad basin pallida, pedibus corylinis. Long. tota 6, alæ 3·6, caudæ 2·5, rostri a rictu 0·65, tarsi 0·7. (Descr. maris ex Mexico, prope urbem. Mus. nostr.)

Hab. North America, Western United States from the eastern base of the Rocky Mountains to the Pacific Ocean [6], Arizona [4].—Mexico, valley of Mexico (*le Strange* [2]), pine-forests of the Volcan de Orizaba (*Sartorius* [3]).

Carpodacus cassini, though closely allied to *C. purpureus*, is generally admitted to be a distinct species; the head above is of a brighter crimson and in contrast with the colour of the back instead of being blended into it, there is a faint superciliary streak, and the under surface is of a pinker hue.

We know but little of this species in Mexico, but the evidence of its occurrence there is unimpeachable. Three skins, two males and a female, were in Mr. le Strange's Mexican collection examined by Sclater and Salvin [2], and one of these specimens is now before us. Again, Dr. Sartorius, long a resident at Mirador, in the State of Vera Cruz, for many years a correspondent with the authorities of the Smithsonian Institution, discovered it in the pine-forests of Orizaba in the month of June 1864, and sent specimens to Washington [3].

In the States *C. cassini* appears to be abundant in the Sierra Nevada and elsewhere, and is described as a beautiful songster. Regarding its nest and eggs there seems to have been some error in Brewer's account of them, so Dr. Coues tells us [4], who adds that the latter are not distinguishable from those of *C. purpureus*, which are described as clear pale bluish, irregularly dotted, but chiefly in a wreath around the larger end, with very dark blackish brown, almost black in some instances, in others lighter.

Dr. Coues has published a biography of this bird in 'Forest and Stream' (xx. No. 22, p. 425; Auk, i. p. 288), a periodical we have not seen.

2. Carpodacus frontalis.

Fringilla frontalis, Say in Long's Exp. ii. p. 40 [1]?

Carpodacus frontalis, Baird, Brew., & Ridgw. N. Am. B. i. p. 465 [2] (var. *hæmorrhous* excepta); Coues, B. N. W. p. 107 [3].

Carpodacus rhodocolpus, Cab. Mus. Hein. i. p. 166 [4].

Carpodacus frontalis, var. *rhodocolpus*, Belding, Pr. U. S. Nat. Mus. vi. p. 343 [5].

Capite, collo, gula, pectore, ventre antico et uropygio coccineis; pileo medio et regione parotica fuscescentibus; corpore supra reliquo fusco, plumis singulis pallide fusco limbatis plerumque rosaceo lavato; ventre imo, crisso et hypochondriis albidis fusco striatis; alis et cauda fuscis, albido extus limbatis; rostro fusco, pedibus obscure corylinis. Long. tota 5·5, alæ 3·0, caudæ 2·5, rostri a rictu 0·5, tarsi 0·65. (Descr. maris ex California. Mus. nostr.)

♀ mari similis, sed colore coccineo et rosaceo absente.

Hab. North America, Middle Province and Pacific Coast-region from Oregon to Cape St. Lucas [2].—Mexico, Guaymas (*Belding* [5]).

It has long been a doubtful point whether the *Carpodacus* of the Middle Province of

North America, *C. frontalis*, should be separated from that of the Pacific Coast-region, *C. rhodocolpus*, but it seems now to be generally admitted by American ornithologists that if there are two forms they pass insensibly one into the other. We have not nearly a sufficient series of skins of these birds to form an independent opinion, so we pass to what must ultimately be the technical result of the blending of the two forms and call them by a common name, *C. frontalis*. *C. mexicanus* of the Mexican highlands we think we can distinguish, so we treat this form as distinct, at least until the barriers are broken down between it and *C. frontalis* and their differences are no longer capable of definition.

C. frontalis is admitted into this fauna on the authority of Mr. L. Belding (we have no Mexican examples), who obtained specimens, determined as of the race *rhodocolpus*, at Guaymas [5]. But we are uncertain as to the correct position of the birds from Frontera and Monterey secured by the naturalists of the Mexican Boundary Survey. We have doubtfully referred them to *C. mexicanus*, but they may belong here.

C. frontalis is a very familiar bird in the country in which it is found, frequenting houses as well as the open country. It has a pleasant song, and builds its nest in all sorts of places—trees, and crevices and ledges, in houses, a Swallow's nest, in fact just as our Sparrow (*Passer domesticus*) does. The materials of its nest consist of grasses, with the lining of finer dried roots and hair. The eggs are pale bluish marked, chiefly near the larger end, with specks and lines of blackish brown.

3. **Carpodacus mexicanus.**

Fringilla mexicana, Müll. Syst. Nat. Suppl. p. 165 (ex D'Aub. Pl. Enl. 386. fig. 1 [1]).

Carpodacus mexicanus, Ridgw. Proc. Biol. Soc. Wash. ii. p. 110 [2].

Fringilla hæmorrhoa, Wagl. Isis, 1831, p. 525 [3]; Licht. Preis-Verz. Mex. Vög. p. 2 (J. f. Orn. 1863, p. 56 [4]).

Carpodacus hæmorrhous, Scl. P. Z. S. 1856, p. 304 [5]; 1858, p. 303 [6]; 1859, p. 380 [7]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550 [8]; Salv. Cat. Strickl. Coll. p. 205 [9].

Pyrrhula frontalis, Sw. Phil. Mag. n. ser. i. p. 435 [10].

Carpodacus frontalis, Bp. Consp. Av. i. p. 533 [11]; Cab. Mus. Hein. i. p. 166 [12]; Baird, Mex. Bound. Surv. ii., Birds, p. 14 (?) [13]; Dugès, La Nat. i. p. 140 [14]; Lawr. Mem. Bost. Soc. N. H. ii. p. 278 [15] (?); Coues, B. N. W. p. 107 [16].

Nochtototl, Hernandez, Hist. An. p. 31, cap. 81 [17] (apud Wagler [3]).

Supra fuscus, interscapulio vix striato, alis et cauda fusco-nigricantibus, illis fusco limbatis; superciliis, fronte late, uropygio et gutture toto læte coccineis; loris et regione parotica dorso concoloribus; corpore reliquo subtus pallide fusco, obscure fusco striato; rostro corneo, mandibula pallida, pedibus nigricante-fuscis. Long. tota 5·6, alæ 3·1, caudæ 2·5, rostri a rictu 0·5, tarsi 0·65. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

♀ mari similis, inornata, colore coccineo nullo, corpore subtus undique fusco striato. (Descr. feminæ ex Mexico, prope urbem. Mus. nostr.)

Hab. Mexico [11 12] (*Deppe* [4], *Mann* [9]), Frontera (*Wright* [13]), Monterey (*Couch* [13]), Tepic and Durango (*Grayson* [15]), Guanajuato (*Dugès* [14]), Guadalajara (*Grayson* [15], *Dugès* [14]),

Temiscaltepec, Real del Monte (*Bullock* [10]), plateau of Vera Cruz (*Sumichrast* [8]), San Andres Gorion (*Sallé* [5]), Oaxaca [6] (*Boucard* [7], *Fenochio*).

Mr. Ridgway decides that this species is the *Fringilla mexicana* of Müller, and on this point there seems little doubt that he is right, though we regret having to abandon Wagler's name of *F. hæmorrhoa* for it. But Mr. Ridgway is still at fault in his nomenclature of these birds, *mexicana* being the oldest name must take precedence of *frontalis*! As already stated, we are in doubt if the Frontera and Monterey birds called *C. frontalis* by Prof. Baird really belong here, or to the species to which they were referred. The *Carpodacus* from Southern Mexico, which we recognize as Wagler's *C. hæmorrhous*, is readily distinguishable from *C. frontalis* by the absence of the rosy tint over the back, the broader crimson forehead, the greyer vertex, and the much more restricted and deeper-coloured crimson throat.

After D'Aubenton's type, the first specimens obtained were probably those submitted to Swainson by Bullock, who shot them at Temiscaltepec and Real del Monte in the tableland of Mexico [10]. Deppe subsequently sent examples to the Berlin Museum, probably from the State of Oaxaca, and it was to his specimens that Lichtenstein gave the name *hæmorrhous* [4], afterwards adopted by Wagler [3], who considered the bird to be the Nochtototl of Hernandez [17].

Sumichrast says that *C. mexicanus* is common throughout the plateau of Mexico, being also found in the elevated portions of the State of Vera Cruz [8]. Grayson observed a *Carpodacus* in the city of Durango in February, in Guadalajara in May, and in Tepic in December, May, and June, and observes that it breeds in these localities, but does not visit the coast-region [15]. Mr. Lawrence named Grayson's birds *C. frontalis*, and we refer them to *C. mexicanus* with doubt, not having seen specimens from that portion of Mexico.

Nothing has been published that we are aware of concerning the nest and eggs of this species, which most probably resemble those of *C. frontalis*.

There is a specimen in the British Museum with the red of the head replaced by yellow, thus resembling D'Aubenton's figure.

LOXIA.

Loxia, Linnæus, Syst. Nat. i. p. 299 (1766).

Loxia, as restricted to the Crossbills, contains five or six rather indefinite species, the number depending very much upon the amount of variation accorded to each. The only one which concerns us is *L. mexicana*, a modification of *L. americana* or of *L. curvirostra* itself. *Loxia* is a genus of the Palæarctic and Neotropical Regions, being found sporadically and at uncertain seasons over the whole of the north temperate zone. *L. mexicana* is probably the only species which passes the tropic, and this only in the Mexican highlands.

The bill of *Loxia* is metagnathous, the points of the maxilla and mandible crossing; both these members of the bill are strongly falcate, and brought to a knife-like edge near the end. The nostrils are wholly hidden by small, stiff feathers, which proceed directly forward from the base of the maxilla. The feet are short, and the tarsi, toes, and claws strong. The wing is very long, the first, second, and third quills being subequal and longest, the rest fall rapidly away, the innermost primaries being little more than half the length of the longest, the longest secondaries slightly exceeding the innermost primaries. The tail is very short and furcate. Red is the prevalent colour in the adult male.

1. Loxia mexicana.

Loxia mexicana, Strickl. Contr. Orn. 1851, p. 43 [1]; Scl. P. Z. S. 1859, p. 365 [2]; Salv. Ibis, 1866, p. 193 [3]; Cat. Strickl. Coll. p. 202 [4].

Loxia americana, Scl. P. Z. S. 1864, p. 174 [5].

Curvirostra americana, Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [6].

Loxia curvirostra, var. *mexicana*, Baird, Brew., & Ridgw. N. Am. B. i. p. 488 [7]; Ridgw. Proc. Biol. Soc. Wash. ii. p. 100 [8].

Loxia curvirostra stricklandi, Check-List N. Am. B. p. 257 [9].

Rubra, alis et cauda nigricante-fuscis; rostro corneo, maxilla et mandibula ad apices decussatim positis, pedibus corylinis. Long. tota 6·0, alæ 4, caudæ 2·2, rostri a rictu 0·8, tarsi 0·65. (Descr. maris ex Mexico. Mus. nostr.)

♀ obscure olivaceo-fusca, uropygio flavido, alis et cauda fusco-nigris extus olivaceo limbatis; subtus oleagineo-grisea, ventre imo albicante. (Descr. feminæ ex Mexico. Mus. nostr.)

Hab. North America, Colorado and Southern Arizona [9].—Mexico (*Mann* [1 4], *Boucard*), valley of Mexico (*White* [5]), Jalapa (*de Oca* [2]), Moyoapam (*Sumichrast* [6]); Guatemala, Chuacus (*O. S. & F. D. G.* [3]).

The larger size and the stouter bill, especially the mandible, seem to be the only points by which the Mexican Crossbill can be distinguished from that of the United States, or, indeed, from the Old-World *L. curvirostra*. These differences seem to be by no means constant, and the size of the bill apparently increases in these birds as we pass from north to south—so much so, that we are quite prepared to acquiesce in the union of all the supposed races of this Crossbill under the comprehensive name of *Loxia curvirostra*. But before doing so a larger series of specimens both from the Old and New Worlds ought to be examined than we have at our command.

In the meantime we call the Mexican bird *L. mexicana*.

This specific name has lately been suppressed by Mr. Ridgway, and *stricklandi* proposed in its stead—the reason apparently for so doing being that Strickland's name had previously been used twice over by Linnæus, one of his *Loxia mexicana* (Syst. Nat. i. p. 304) referring to *Spiza americana* (Gm.), the other to *Pyrangra rubra*. The chance of any confusion arising from continuing to employ Strickland's name is so exceedingly small that we adhere to the spirit of the law by retaining the name

mexicana for this bird. When either *Spiza americana* or *Pyranga rubra* has to be called *Loxia mexicana* a confusion will certainly arise, and then the name *stricklandi* will be useful. But is this likely to happen?

Very little has been recorded of *L. mexicana* in Mexico. Strickland's type came into his possession in 1840, and formed part of a collection made by T. Mann probably in the Mexican highlands[4]. Sumichrast only obtained a single specimen at Moyoapam in the alpine region of Orizaba, at an elevation of about 8200 feet above the sea[6]. Other examples have been secured by White, Boucard, de Oca, and others.

In Guatemala we only met with *L. mexicana* on one occasion (in September 1861), when descending from the ridge which divides the plain of Salama from the valley of the Motagua. Several birds were feeding in some pine-trees. As we were unable to secure specimens there is some uncertainty as to whether these birds were really identical with *L. mexicana*, but we have not much doubt on the point.

L. mexicana doubtless has the irregular habits of *L. curvirostra* and *L. americana*, which wander from place to place without having any definite migrations. They breed, too, at various seasons, often in midwinter.

COCCOTHRAUSTES.

Coccothraustes, Brisson, Orn. iii. p. 218 (1760).
Hesperiphona, Bp. Compt. Rend. xxxi. p. 424; Coues, Key N. Am. B. ed. 2, p. 342.

Coccothraustes with its subgenus *Hesperiphona* contains four or five species, and is distributed over a large portion of the Nearctic and Palæarctic Regions—its distribution being somewhat similar to that of *Carpodacus*, except that *Coccothraustes vulgaris* is not an uncommon bird in the British Islands, where *Carpodacus* is practically unknown. In America two species occur—*C. vespertinus* in the Western States and Mexico, and *C. abeillæi* in Southern Mexico and Guatemala. The type of *Coccothraustes* (*C. vulgaris*) is peculiar in having the secondary feathers of the wings splayed out at their extremities; no formation of this kind is present in the American species.

The bill of *C. vespertinus* is very stout and tumid towards the base, especially of the maxilla, the culmen is nearly straight towards the base, but decurved towards the extremity, the tomia is gradually curved from the rictus and not angulated. The nostrils are completely hidden by stiff bristly black feathers springing from the base of the maxilla and lying close to it. The feet are moderate, the tarsus being shorter than the middle toe and claw, the lateral toes being short with small claws. The wing is long and pointed, the first, second, and third quills forming the wing end, the rest rapidly decreasing in length, the longest secondaries being a little longer than the shortest primaries. The tail is short and slightly furcate.

1. Coccothraustes vespertinus.

Fringilla vespertina, Cooper, Ann. Lyc. N. Y. i. p. 220[1].

Hesperiphona vespertina, Bp. Consp. Av. i. p. 505[2]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[3]; Baird, Brew., & Ridgw. N. Am. B. i. p. 449[4]; Coues, Bull. Nutt. Orn. Club, iv. p. 65[5]; Key N. Am. B. ed. 2, p. 342[6].

Coccothraustes vespertinus, Scl. P. Z. S. 1860, p. 251[7]; Salv. Cat. Strickl. Coll. p. 211[8].

Coccothraustes vespertina, Check-List N. Am. B. p. 255[9].

Coccothraustes bonapartii, Less. Ill. Zool. t. 34[10].

Supra oleagineo-brunneus, vertice postica, margine frontali, alis et cauda nigris, fronte et superciliis et scapularibus flavis, secundariis sordide albis; subtus oleagineo-flavus, capitis lateribus, gula et cervice brunnescentioribus, crisso pure flavo; tectricibus caudæ superioribus nigris; rostro viridescente-corneo, apice et tomiis flavis, pedibus carneis. Long. tota 6·5, alæ 4·2, caudæ 2·4, rostri a rictu 0·9, tarsi 0·9. (Descr. maris ex Mexico. Mus. nostr.)

♀ supra fusca, capite saturatiore; alis et cauda nigris, speculo alari et rectricum apicibus albis; tectricibus caudæ superioribus quoque albo maculatis; subtus dilutior, stria rictali nigra. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. North America, Western United States, Michigan[1], and eastwards to the great lakes, New York, and Canada.—Mexico (*Mann*[8]), Monte Alto (*Sumichrast*[3]), Orizaba (*Sallé*[7]).

This well-marked species was divided into two races by the authors of the 'History of North-American Birds,' the southern and Mexican form being called "*montana*." This attempted separation has since been given up as untenable. Moreover, in the same work *C. vespertinus* is said to be found in Guatemala upon Salvin's authority; but some mistake has been made here, the only *Coccothraustes* found in that country that we have any knowledge of is *C. abeillæi*.

C. vespertinus cannot be called a common bird in Mexico, though skins of it not unfrequently occur in collections from that country. Sumichrast knew little of this species; he speaks of it as a probable inhabitant of the alpine region of Vera Cruz, and as having met with it in May 1857 in the pine-woods of Monte Alto, about twelve leagues from Mexico[3]. Other writers merely record its presence within the limits of the republic.

In the United States *C. vespertinus* is much better known, though always observed with interest. An excellent biography has been given of it from the pen of Dr. Coues[5]; Brewer's account of the history of the species is also very full[4].

In 1884 its nest and eggs still remained undiscovered[6].

2. Coccothraustes abeillæi.

Guiraca abeillii, Less. Rev. Zool. 1839, p. 41[1].

Hesperiphona abeillii, Bp. Consp. Av. i. p. 505[2]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[3].

Coccothraustes abeillii, Scl. & Salv. Ibis, 1859, p. 19[4]; Scl. P. Z. S. 1859, p. 365[5]; Ibis, 1861, p. 352[6]; 1866, p. 206[7].

Coccothraustes maculipennis, Scl. P. Z. S. 1860, p. 251, t. 163. ff. 1, 2[8]; Scl. & Salv. Ibis, 1860, p. 398[9].

C. vespertino aliquot similis, sed corpore supra flavescentiore, capite toto et gula omnino nigris facile distinguendus. (Descr. maris ex Chilasco, Guatemala. Mus. nostr.)

♀ a femina *C. vespertini* capite summo toto nigro differt. (Descr. feminæ ex Coban, Guatemala. Mus. nostr.)

Hab. Mexico (*Lesson*[1], *Bonaparte*[2]), Orizaba (*Sallé*, *Sumichrast*[3]), Jalapa (*de Oca*[5]); Guatemala (*Skinner*[4]), Volcan de Fuego, Chilasco, Coban[6] (*O. S. & F. D. G.*).

This *Coccothraustes*, which is readily distinguishable from its American ally *C. vespertinus*, was described by Lesson from Mexican specimens contained in the collection of Doctor Abeillé of Bordeaux; and it has since been observed in several parts of the mountains of Southern Mexico. Thus Sumichrast speaks of having met with it near Orizaba, where also one of M. Sallé's correspondents obtained the specimens described by Mr. Sclater as *C. maculipennis*[8].

In Guatemala we secured specimens of both sexes at several points in the more mountainous districts, and usually in the oak-forests situated at an altitude of about 6000 feet above the sea.

The discovery of the sexes of this bird together in the mountains near Coban led to the conclusion that *C. maculipennis* represented the female or young male of *C. abeillæi*[6]; this was confirmed by dissecting a specimen of the female shot in the forests of the Volcan de Fuego near Dueñas.

In its habits this species is shy, and rather sluggish in its movements, frequenting the lower branches of the forest-trees.

CHRYSOMITRIS.

Chrysomitris, Boie, Isis, 1828, p. 322; Coues, Key N. Am. B. ed. 2, p. 353.

American ornithologists have recently adopted Koch's name *Spinus* for the Siskins on the ground that it was so restricted by Boie in 1826; but in those instances where types for genera are vaguely indicated and no descriptions given, an author's subsequent action ought to be taken into account, and the fact of Boie proposing *Chrysomitris* for the Siskins in 1828 ought to be considered to throw some light on his previous application of the name *Spinus*. Hence we continue the use of *Chrysomitris*, following the practice of most authors for many years past.

With the exception of *C. pinus*, in which the plumage is streaked throughout, black and yellow or olive are the chief colours in the Central-American species of *Chrysomitris*. The bill in *C. notata* is very acute, the culmen being nearly straight, the tomia of the maxilla is angulated and has a slight dentate process near the angle, in front of which is a slight undulation, the bill above it being somewhat tumid; the nasal fossa is completely hidden by short, bristly feathers lying close to the surface of the bill; the feet are moderately strong, the middle toe and tarsi being subequal; the

wings are long, the first, second, and third quills forming the wing-point; the tail is moderate, and rather deeply furcate. *C. mexicana*, in having a shorter, stouter, and less acute bill and shorter tail, departs considerably from *C. notata*, and for it and *C. psaltria* and *C. colombiana* Cassin proposed the sectional name *Pseudomitris*. *C. xanthogaster* occupies a somewhat intermediate position, and we doubt the convenience of using sectional names for the different groups of this genus. *Chrysomitris*, as a whole, has a very wide range, being spread over nearly the whole of both continents of America; it also occurs in Europe, Northern Asia, and the slopes of the Himalayas.

a. *Corpus omnino fusco striatum.*

1. Chrysomitris pinus.

Fringilla pinus, Wils. Am. Orn. ii. p. 133, t. 17. f. 1[1].

Chrysomitris pinus, Scl. P. Z. S. 1864, p. 174[2]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[3]; Scl. & Salv. P. Z. S. 1869, p. 362[4]; Baird, Brewer, & Ridgw. N. Am. B. i. p. 480[5].

Carduelis microptera, DuBus, Esq. Orn. t. 23[6].

Chrysomitris microptera, Bp. Consp. Av. i. p. 515[7].

Supra fusca, plumis singulis pallide fusco utrinque limbatis; alis et cauda nigricante-fuscis olivaceo extus limbatis, speculo alari et fascia ad basin secundariorum flavis; subtus alba undique fusco striata, remigibus subtus in pogonio interno flavis; rostro corneo, pedibus corylinis. Long. tota 4·5, alæ 2·9, caudæ rect. med. 1·5, lat. 1·85, rostri a rictu 0·55, tarsi 0·6. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. North America, generally distributed[5].—Mexico (*le Strange*[4]), valley of Mexico (*White*[2]), plateau and alpine region of Vera Cruz (*Snmichrast*[3]).

Chrysomitris pinus has been noticed by most of the collectors who have worked in the Mexican highlands, but Sumichrast is the only one who does more than give a bare record of its occurrence; he says that it especially frequents the plateau of Mexico, and is also found in the alpine region of Vera Cruz, where it reaches to an altitude of 6500, and not descending below 3300 feet[3]. In the United States it is a well-known species, being found the whole way across the continent from the Atlantic to the Pacific. In the winter its migrations are irregular and apparently of limited extent. Its breeding-ground in summer extends to the British Provinces and the more northern of the United States. It is a bird that chiefly frequents the pine-woods, and its nest is principally constructed of pine-twigs with a lining of various materials; the eggs are of a light green colour, spotted chiefly at the larger end, with light rusty brown[5].

b. *Corpus supra plus minusve olivaceum, capite summo nigro.*

2. Chrysomitris notata.

Carduelis notata, DuBus, Bull. Ac. Brux. xiv. pt. 2, p. 106[1]; Rev. Zool. 1848, p. 247[2].

Chrysomitris notata, Bp. Consp. Av. i. p. 516[3]; Cab. Mus. Hein. i. p. 160[4]; DuBus, Esq. Orn. t. 37[5]; Scl. P. Z. S. 1856, p. 304[6]; 1858, p. 303[7]; 1859, pp. 365[8], 380[9]; 1864, p. 174[10];

Cat. Am. B. p. 124[11]; Scl. & Salv. Ibis, 1860, p. 275[12]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[13]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 22[14]; Salv. Cat. Strickl. Coll. p. 214[15].

♂ supra oleaginea, uropygio flavescentiore, capite toto cum gutture et tectricibus supracaudalibus nigerrimis; alis et cauda nigris, illarum remigibus ad basin (præter rhachides) flavis, hujus rectricibus (præter duarum mediarum bitrientem basalem) flavis; subtus a pectore usque ad crissum flava, hypochondriis oleagineis; rostro plumbeo, tomiis pallidis, pedibus corylinis. Long. tota 4·1, alæ 2·5, caudæ rect. med. 1·4, lat. 1·7, rostri a rictu 0·5, tarsi 0·5. (Descr. maris ex Santa Barbara, Guatemala. Mus. nostr.)

♀ mari similis.

Av. juv. capite toto haud nigro, gula cum ventre et vertice cum dorso concoloribus. (Descr. exempl. ex Calderas, Guatemala. Mus. nostr.)

Hab. Mexico, valley of Mexico (*White*[10]), temperate region of Vera Cruz (*Sumichrast*[13]), Orizaba (*Botteri*[7]), Jalapa (*de Oca*[8]), La Parada[9], Totontepec[9] (*Boucard*), Gineta Mountains (*Sumichrast*[14]); Guatemala (*Constancia*[15]), Volcan de Fuego, Volcan de Agua, hills near Antigua, Santa Barbara, Coban (*O. S. & F. D. G.*).

Chrysomitris notata was described and figured by the late Viscomte DuBus from Mexican specimens, and it has since been found pretty generally distributed over the whole of the southern portion of that country, where, Sumichrast tells us, it is chiefly met with in the temperate region. In Guatemala it is equally common in the upland country, principally in the oak-forests lying at an elevation of 4000 feet and upwards.

The sexes of this Goldfinch are almost exactly alike, the yellow colour of the female being a trifle purer than in the male.

3. **Chrysomitris forreri,** sp. n.

♂ *C. notatæ* similis, sed supra magis olivaceus, colore nigro capitis minus extenso, gulam anticam tantum occupante; subtus magis olivaceus et speculo alari flava multo minore, distinguendus.

♀ mari similis. (Descr. maris et feminæ ex Ciudad in Durango. Mus. nostr.)

Hab. Mexico, Ciudad in Durango (*A. Forrer*).

Two specimens obtained by Mr. A. Forrer in the Sierra Madre of Durango, near the hamlet of Ciudad, on the 19th of June, 1882, differ rather widely from typical specimens of *C. notata* from Southern Mexico and Guatemala. The plumage is much greener, and the black of the head and throat, especially of the latter, much more restricted in extent. On this account we think it necessary to give the bird another name.

4. **Chrysomitris atriceps.** (Tab. XXXI. figg. 1, 2.)

Chrysomitris atriceps, Salv. P. Z. S. 1863, p. 190[1]; Ibis, 1866, p. 194[2]; Ridgway, Ibis, 1884, p. 43[3].

Olivacea; capitis lateribus griseis; abdomine medialiter cinereo; dorso postico et uropygio viridescente-flavis; pileo toto et gula nigris, hac obscuriore; remige externo omnino nigro, secundi et tertii pogoniis externis medialiter flavo marginatis, quarti et reliquorum pogoniis externis in parte basali flavis, in parte terminali nigris flavo marginatis, pogoniis internis omnium flavo marginatis; secundariorum parte basali flava, parte terminali nigra, macula olivacea externe terminata; duabus rectricibus internis nigro-fuscis, reliquis flavis

nigro terminatis; rostri maxilla fusca, mandibula pallidiore, pedibus fuscis. Long. tota 4·85, alæ 2·9, caudæ 2, rostri a rictu 0·5, tarsi 0·55. (Descr. maris ex Quezaltenango, Guatemala. Mus. nostr.)

Hab. GUATEMALA, Quezaltenango (*O. S.*[1 2]).

The two specimens shot amongst a patch of thistles near Quezaltenango in August 1862 are the only ones extant of this peculiar species. These differ from one another, though both are males, the bird described being apparently the older of the two, though in more worn plumage. The other specimen is of a much more olive-colour above and below, this taking the place of the grey colouring of the under surface; the yellow wing-patch, too, is considerably less in extent. The bill in this species is like that of *C. notata*, but in plumage it more resembles *C. spinescens* of Colombia, as Mr. Ridgway suggests[3], but there are plenty of differences.

c. *Corpus supra cum capite summo omnino nigrum.*

5. **Chrysomitris xanthogaster.** (Tab. XXXI. fig. 3.)

Chrysomitris xanthogastra, DuBus, Bull. Ac. Brux. xxii. pt. 1, p. 152[1]; Scl. & Salv. P. Z. S. 1870, p. 785[2]; 1879, pp. 508[3], 607[4]; Wyatt, Ibis, 1871, p. 328[5].

Chrysomitris bryanti, Cassin, Pr. Ac. Phil. 1865, p. 91[6]; Lawr. Ann. Lyc. N. Y. ix. p. 103[7]; Frantz. J. f. Orn. 1869, p. 302[8].

Nigra, speculo alari, abdomine toto et cauda ad basin flavis; rostro nigro, pedibus fuscis. Long. tota 4·3, alæ 2·6, caudæ 1·6, rostri a rictu 0·45, tarsi 0·5. (Descr. maris ex Irazu, Costa Rica. Mus. nostr.)

♀ supra olivacea, alis et cauda nigris, hujus basi et speculo alari flavis; subtus olivacea, ventre imo griseo, crisso pallide flavo. (Descr. feminæ aut maris juv. ex Dota, Costa Rica. Mus. nostr.)

Hab. COSTA RICA (*Van Patten*), Dota[6], Frailes (*Carmiol*), Irazu (*Rogers*).—COLOMBIA[1 3]; VENEZUELA[2]; ECUADOR; BOLIVIA[4].

This Goldfinch was originally described from specimens procured near Ocaña in Colombia[1], and in the same district Mr. Wyatt also met with it in small flocks near Canuto, and in the Cocuta valley at an altitude of from 5000 to 6000 feet[5]. Skins of it also occur in collections made in the neighbourhood of Bogota; and Salmon found it breeding at Santa Elena in the Cauca valley, and the eggs obtained by him are described as of a pale greenish white, thickly, but faintly, freckled with lilac and brownish spots[3]. We have a skin of it from Ecuador, and it also occurs in Bolivia. Two male specimens from Nairape and Sorata respectively, in the latter country, agree with the more northern birds, except that the wing-spot is rather larger and the colour beneath brighter. Dr. Taczanowski makes no mention of its occurrence in Peru, but it can hardly fail to exist there. Within our country it is only known from the highlands of Costa Rica. Cassin described specimens from the Dota Mountains as *C. bryanti*, but there can be no doubt that the Costa-Rican birds should be referred to *C. xanthogaster*; we can see no difference between males from Costa Rica and the Magdalena valley, the countries of the respective types.

6. Chrysomitris mexicana.

Carduelis mexicanus, Sw. Phil. Mag. new ser. i. p. 435[1]; Wagl. Isis, 1831, p. 525[2].

Chrysomitris mexicana, Bp. Consp. Av. i. p. 516[3]; Baird, U. S. Bound. Surv. ii., Birds, p. 14[4]; Scl. P. Z. S. 1856, p. 303[5]; 1858, p. 303[6]; 1859, pp. 365[7], 380[8]; Scl. & Salv. Ibis, 1859, p. 19[9]; 1860, p. 34[10]; P. Z. S. 1864, p. 353[11]; Lawr. Ann. Lyc. N. Y. vii. p. 332[12]; ix. p. 103[13]; Dugès, La Nat. i. p. 140[14]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 550[15]; Salv. Ibis, 1869, p. 314[16]; P. Z. S. 1870, p. 190[17]; Cat. Strickl. Coll. p. 214[18]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 282[19]; Boucard, P. Z. S. 1883, p. 445[20].

Astragalinus mexicanus, Cab. Mus. Hein. i. p. 159[21]; J. f. Orn. 1861, p. 7[22].

Astragalinus columbianus, Cab. J. f. Orn. 1861, p. 94[23].

Chrysomitris columbianus, Lawr. Ann. Lyc. N. Y. ix. p. 103[24]; Frantz. J. f. Orn. 1869, p. 302[25].

Fringilla melanoxantha, Licht. Preis-Verz. Mex. Vög. p. 2 (cf. J. f. Orn. 1863, p. 56[26]).

Chrysomitris psaltria, Bp. Consp. Av. i. p. 516[27].

Chrysomitris psaltria, var. *mexicana*, Baird, Brew., & Ridgw. N. Am. B. i. p. 478[28]; Lawr. Mem. Bost. Soc. N. H. ii. p. 278[29].

Supra chalybeo-nigra, speculo alari et secundariis internis in pogonio externo ad apicem albis, cauda nigra, rectricibus tribus utrinque externis in pogonio interno medialiter albis; subtus omnino flava; rostro flavido, culmine ad apicem fusco, pedibus corylinis. Long. tota 4·2, alæ 2·5, caudæ rect. med. 1·6, lat. 1·8, rostri a rictu 0·4, tarsi 0·5. (Descr. maris ex Quezaltenango, Guatemala. Mus. nostr.)

♀ supra olivacea, alis et cauda fuscis olivaceo limbatis; subtus a gula ad pectus pallide olivaceis, ventre flavo. (Descr. feminæ ex Coban, Guatemala. Mus. nostr.)

Hab. Mexico, Rio Grande valley, Santa Catarina in Nuevo Leon, Agua Nueva in Coahuila, Parras (*Couch*[4]), Tres Marias Islands (*Grayson*[19], *Forrer*), Guanajuato (*Dugès*[14]), Temiscaltepec, Real del Monte (*Bullock*[1]), Jalapa (*de Oca*[7]), Oaxaca[6], Totontepec (*Boucard*[8]), Orizaba (*Sumichrast*[15]), Cordova (*Sallé*[5]), Yucatan (*Gaumer*[20]); Guatemala (*Constancia*[9 18]), Dueñas[10], San Gerónimo, Coban (*O. S. & F. D. G.*); Costa Rica (*Hoffmann*, *v. Frantzius*[24]), San José (*v. Frantzius*[13]), Barranca (*Carmiol*[13]); Panama, Veraguas (*Arcé*[17]), Lion Hill (*M'Leannan*[11 12]).

Throughout Mexico and Central America *C. mexicana* is very constant in its colours; in the male the whole upper surface is black, and the lateral tail-feathers have a large white spot on their inner webs. In the north-western portion of South America birds with these characteristics are also found, but with them in some parts of Colombia birds occur in which the white spots of the tail show a tendency to disappear, whilst in others the tail is wholly black. These latter birds have been called *C. colombiana*, but they are not specifically distinguishable from *C. mexicana*. In North America a Siskin called *C. psaltria* by Say occurs in the Southern Rocky Mountains to the Pacific; in this bird the whole of the upper surface of the body is olive colour instead of black, the vertex and upper tail-coverts alone being black. On comparing typical specimens of *C. mexicana* and *C. psaltria* the difference between the two is very obvious indeed; but in Arizona birds in every intermediate form of plumage have been found, and this has led American ornithologists, after giving this Arizona bird the name of *C. arizonæ*, to treat both it and *C. mexicana* as races of *C. psaltria*. From the fact of the great

diversity of plumage shown in individuals from Arizona it seems probable that they are due to the mingling of the more typical forms of *C. mexicana* and *C. psaltria*. This being so, we are not disposed to disturb the status of the Mexican and Central-American bird with which at present we have to deal, and which we therefore continue to call *C. mexicana*.

In Mexico *C. mexicana* is a very abundant species, being distributed over the whole of the temperate portion of the country; but it is also found in the more tropical districts, as both Grayson and Forrer observed it in the Tres Marias Islands, and Mr. Gaumer in Northern Yucatan. Moreover, it occurs on the line of the Panama railway in extreme tropical heat. In Guatemala it is also a very common bird, and in the neighbourhood of Dueñas was frequently to be observed feeding on the fruit of a species of wild *Ficus*.

SYCALIS.

Sycalis, Boie, Isis, 1828, p. 324; Sclater, Ibis, 1872, p. 39.

In 1872 Mr. Sclater wrote a synopsis of this genus in which he recognized nine species, and to which a tenth may be added in *S. citrina* of Pelzeln, which has since become known to us through specimens collected by Mr. Whitely in Guiana. Nine of these species are diffused over the whole of South America, the tenth is *Sycalis chrysops* of our country, as yet only known from Southern Mexico and Guatemala. In South America *Sycalis* has no very near allies, but it is undoubtedly closely related to *Crithagra* of Africa.

S. chrysops has a stout bill and arched culmen, the tomia of the maxilla is rather abruptly curved towards the base, the nostrils are at the inferior extremity of the nasal fossa, and are bordered above by a membrane; the feet are stout, the toes and claws, especially the hind claw, are long and slender; the wings are short, the first four quills forming the point; the secondaries are long, reaching to within 0·4 inch of the tip of the wing; the tail is moderate and nearly even.

1. Sycalis chrysops.

Sycalis chrysops, Scl. P. Z. S. 1861, p. 376 [1]; Ibis, 1872, p. 45, t. 2. f. 1 [2]; Salv. Ibis, 1866, p. 194 [3]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 551 [4].

Supra brunnescens nigricante-fusco striato; uropygio olivaceo, alis et cauda fuscis sordide olivaceo limbatis; loris, regione oculari et corpore subtus flavis, ventre medio albicante, hypochondriis fulvis; rostro fusco, pedibus corylinis. Long. tota 4·2, alæ 2·5, caudæ 1·7, rostri a rictu 0·35, tarsi 0·65. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Hab. MEXICO [1], temperate region of Orizaba (*Sumichrast* [4]); GUATEMALA, Dueñas (*O. S.* [3]).

This little *Sycalis* is evidently closely allied to *S. luteola*, a variable and widely diffused species of South America, its small size and its isolated habitat being probably its only definite characters. The bird is exceedingly rare, and we are perhaps

hardly in a position to speak definitely as to its status with reference to *S. luteola*. A Mexican skin sent to Mr. Sclater by the Parisian dealer Parzudaki formed the basis of the original description [1]; Sumichrast subsequently found it near Orizaba [4]. It has only once been noticed in Guatemala, Salvin having shot a young bird at the edge of some high grass on the plain of Dueñas in September 1862. There was another specimen with it, and the two were feeding on grass-seeds [3].

Genus Fringillidarum incertæ sedis.

ACANTHIDOPS.

Acanthidops, Ridgway, Pr. U. S. Nat. Mus. iv. p. 335 (1882); Scl. Ibis, 1884, p. 241.

In 1882 Mr. Ridgway described a bird from Costa Rica under the name of *Acanthidops bairdi* from a specimen sent him by Mr. Zeledon. He considered it to belong to the Dendrocolaptidæ, and to be most nearly related to *Automolus*, *Phacellodromus*, &c. He sent us the type for inspection, and also a second specimen from the same country; these we carefully examined with Mr. Sclater, who wrote a note on the subject in 'The Ibis' for 1884. It was proved that *Acanthidops* has nine and not ten primaries, and therefore, according to the prevailing system of classification, it must go with the Oscines and not the Tracheophones. Our own impression was that both specimens (marked male and female) were young birds in their first full plumage, and to this cause was to be attributed the sharpness of the ends of the rectrices. If this be so, we may look for a very differently coloured bird in the adult male. At the same time, if the suggested relationship to *Chrysomitris* is a real one, the coloration of the adult may be as in *C. pinus*, and in that case not very different from that of the young. Then, again, the exposed nostrils militates against any alliance with *Chrysomitris*, the position suggested for it by Mr. Sclater.

For the present we suspend our judgment as to the position of *Acanthidops*, pending the receipt of more specimens.

In the meantime we give the substance of Mr. Ridgway's description of the genus and species:—

Bill about as long as the middle toe, cuneate in all its profiles, somewhat swollen basally, the culmen and lateral outlines decidedly concave in the middle portion; mandibular tomia very strongly inflexed, with a prominent angle near the base, anterior to which the edge is decidedly concave; maxillary tomia with a decided notch near the base, immediately above the mandibular angle; gonys very long (about equal to the exposed portion of the culmen); nostril exposed, small, longitudinal, occupying less than the lower half of the nasal fossa. Tarsus a little longer than the middle toe and claw, divided into about six plates, but these entirely fused on the outer side, except the lower one, which is distinct; lateral toes equal, the points of their claws falling

short of the base of the middle claw; inner toe entirely separated at the base from the middle toe, and the outer with only the first phalanx united; hallux about equal in length to the lateral toes, but much stronger, its claw decidedly larger than that of the middle toe. Wings decidedly longer than the tail, very concave beneath, the third, fourth, and fifth quills nearly equal and longest, the second a very little shorter, the first about equal to the seventh. Tail about equal to the wing measured to the end of the secondaries, nearly even or very slightly rounded, consisting of twelve rectrices, which are acute, but not stiffened at the points; the outer web of the median rectrices broader at the base than the inner web.

There is a small notch near the tip of the maxilla; the rictal bristles are hardly perceptible, and the posterior face of the tarsus on both sides is entirely undivided.

1. **Acanthidops bairdi.**

Acanthidops bairdi, Ridgw. Pr. U. S. Nat. Mus. iv. p. 336[1].

"Above dull olive-brown, the back washed with rusty; wings dusky, the middle and greater coverts tipped with pale rusty, forming two distinct bands, the inner secondaries broadly edged with darker rusty; remaining secondaries narrowly skirted with dark umber-brown, the primaries with light dull ochraceous or yellowish-olive. Tail dusky, the outer webs slightly greenish-olive. Pileum indistinctly streaked with dusky; sides of the head and neck dull olivaceous, lighter than the crown and nape; chin and throat still paler, the feathers pale only beneath the surface, the rest of the lower parts dull, light olivaceous, tinged with deeper olive across the breast and along the sides. Maxilla blackish, paler along the edge; mandible whitish; legs and feet (in the dried skin) light brownish; iris pale blue. Wing 2·5, tail 2·2, culmen 0·58, commissure 0·65, tarsus 0·8, middle toe 0·6."

Hab. Costa Rica, Volcan de Irazu (*J. Cooper* [1]).

Species incertæ sedis.

1. **Sporophila othello,** Bp. Consp. Av. i. p. 498.

Major, nigerrimus, remigibus extus basi late albis, tectricibus inferioribus nigris.

Hab. America Centralis (*Mus. Berol.*).

This species is placed with *S. crassirostris* in the section *Coccoborus.* The description suggests *Oryzoborus nuttingi* (*anteà*, p. 348), but the size of the wing-speculum does not appear to correspond, and there are no dimensions given to guide our judgment.

2. **Oriturus mexicanus,** Bp. Consp. Av. i. p. 469.

Unicolor, uniformis.

Hab. Mexico (*Mus. Lugd.*).

Can this refer to *Haplospiza uniformis* (*anteà*, p. 366)?

G. R. Gray places *O. mexicanus* as a synonym of *Hæmophila rufescens* (Hand-l. ii. p. 91, no. 7343); but this cannot be correct, the description corresponding in no way. Two words of definition are not enough to give a species a proper status.

Section V. OSCINES CULTRIROSTRES.

Fam. ICTERIDÆ *.

Subfam. I. *CASSICINÆ.*

Nares, nudæ, apertæ, aut operculo corneo obtectæ; mesorhinium plus minusve dilatatum, clypeum frontalem formans.

A. *Nares apertæ haud operculatæ.*

a. *Clypeus frontalis multo dilatatus ad basin incrassatus.*

EUCORYSTES.

Eucorystes, Sclater, Ibis, 1883, p. 147; Cat. B. Brit. Mus. xi. p. 311.

The single species contained in this genus was until lately placed in *Ocyalus*, the type and now the only species of which is *O. latirostris* of the valley of the Upper Amazons. In 1883 Mr. Sclater separated *O. wagleri* from *Ocyalus* and placed it under a new generic name, *Eucorystes*, on account of the greater development of the frontal shield, its extension backwards to a line between the middle of the eyes, its incurved culmen, nuchal crest, and shorter wings.

The bill of *Eucorystes wagleri* is elongated and acute, the culmen slightly decurved, the edges of the maxilla looked at from above are concave, the frontal shield is much expanded at the base, its proximal margin nearly semicircular and thickened so as to form a fold over the forehead; this swollen plate is continued forwards so as to form a sort of ridge overhanging the nostrils, which are oval, without any surrounding membrane, and directed forwards; the mandible is swollen towards the base, the lower angle of the sheath reaching backwards as far as the proximal edge of the frontal shield; the legs are stout and of insessorial structure, the tarsi being short; the wings long (though shorter than in *Ocyalus latirostris*), the fourth primary is the longest, the third being slightly shorter, the second is longer than the fifth, which again is longer than the first; all the outer primaries are acute though rounded at their tips, the secondaries are broad but short and graduated; the tail-feathers are narrow and bluntly pointed, the central feathers are a little longer than the outer pair, the third on either side from the centre are the longest pair; the tail is thus somewhat cuneate, but furcate centrally.

The range of *Eucorystes* is given under its only species *E. wagleri.*

* This family has very recently been thoroughly revised by Mr. Sclater in the eleventh volume of the British Museum Catalogue of Birds, in compiling which the author had the whole of our series of specimens for examination and for incorporation into the National Collection. This catalogue therefore contains a complete list of our specimens up to its issue (April 1886). In preparing our account of the Mexican and Central-American species of Icteridæ, we have found this work of the greatest service, and we have followed the classification there adopted throughout with very slight modification.

1. Eucorystes wagleri.

Cacicus wagleri, Gray, Gen. B. ii. p. 342, t. 85 [1]; Cass. Pr. Ac. Phil. 1867, p. 72 [2].

Ocyalus wagleri, Scl. P. Z. S. 1857, p. 228 [3]; Scl. & Salv. Ibis, 1859, p. 19 [4]; P. Z. S. 1864, p. 353 [5]; 1870, p. 836 [6]; 1879, p. 508, t. 43. f. 3 [7]; Moore, P. Z. S. 1859, p. 57 [8]; Cass. Pr. Ac. Phil. 1860, p. 138 [9]; Cab. J. f. Orn. 1861, p. 9 [10]; Salv. Ibis, 1861, p. 141 [11]; 1872, p. 317 [12]; P. Z. S. 1867, p. 142 [13]; 1870, p. 190 [14]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [15]; ix. p. 104 [16]; Frantz. J. f. Orn. 1869, p. 302 [17]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [18]; Nutting, Pr. U.S. Nat. Mus. v. p. 393 [19].

Eucorystes wagleri, Scl. Ibis, 1883, p. 147 [20]; Cat. B. Brit. Mus. xi. p. 312 [21].

Saturate brunneo-castaneus, crista verticali elongata ejusdem coloris; interscapulio, alis extus, abdomine medio et subalaribus chalybeo-nigris; cauda flava, rectricibus utrinque extimis in pogonio externo et duabus mediis omnino, nigricantibus; rostro flavicante-fusco-griseo, pedibus nigris. Long. tota 14·0, alæ 8·1, caudæ 5·2 (rectr. med. 4·8), rostri a rictu 2·2, tarsi 1·5.

♀ mari similis, sed multo minor, interscapulio et abdomine medio magis castaneis. Long. tota 10·5, alæ 5·6, caudæ 3·8 (rectr. med. 3·6), rostri a rictu 1·6, tarsi 1·2. (Descr. maris et feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico (*Sallé* [3]), Cerra de la Defensa (*Sumichrast* [18]); Guatemala, Cahabon (*Skinner* [4]), Lanquin (*O. S.* [11]), Choctum (*O. S. & F. D. G.* [21]); Honduras, Chilomo (*Leyland* [9]), San Pedro (*G. M. Whitely* [6]); Nicaragua, Chontales (*Belt* [12]); Costa Rica (*v. Frantzius* [10 17]), San José, Turrialba, San Carlos (*Carmiol* [16]), La Palma (*Nutting* [19]), Tucurriqui (*Arcé* [21]); Panama, Chitra [14], Calobre [14], Santa Fé [13] (*Arcé*), line of railway (*M'Leannan* [5 15]), Truando, Nercua (*Wood* [2]).—Colombia [7]; Western Ecuador.

Eucorystes wagleri is one of the most characteristic species of a large portion of the hot forest-region of Southern Mexico and Central America, and thence southwards to Western Ecuador [21], and as far as Piura [21], within the confines of Western Peru, close to the limit of the forest-region of that part of the coast. It lives in colonies, often numbering several hundred individuals; these frequent some large isolated tree often by a road-side or near a village in some clearing. The upper branches of a tree thus situated are densely hung with their curious closely-woven purse-like nests, which are suspended to the ends of the boughs. Whether the nests are occupied all the year round we are not able to say, but the birds certainly frequent them when incubation and the rearing the young is not in progress. A pine-tree near Lanquin, in Guatemala, was observed by Salvin, in March 1860, to be hung with nests about which the birds were busying themselves. In hopes of finding some eggs he had the tree cut down, but the nests were empty [11]. Mr. Nutting speaks of a large colony frequenting a dead tree on the road from Punta Arenas to San José in Costa Rica; he observed the birds to get inside their nests and shake them violently, so as to produce a rattling sound. He was unable to ascertain the object of this curious performance [19].

Salmon obtained eggs of this species at Pocune, in the valley of the Cauca, Colombia. They are pale greenish white with sepia spots of various sizes [7].

Reverting to the range of this species it must be remarked that though common in

the forest-country of the Atlantic or eastern side of Guatemala, up to an elevation of about 2000 feet, it is not found, so far as we know, anywhere in the forest-lands bordering the Pacific; it is found in the western forests of Mexico; Sumichrast speaks of having observed it in the woods of Cerra de la Defensa, but its name is absent from his Tehuantepec list. Passing southwards, we find, as is so often the case with birds of purely eastern domicile in the north, that *E. wagleri* in Nicaragua, Costa Rica, and Panama frequents the forests of both sides of the mountain-ranges.

GYMNOSTINOPS.

Gymnostinops, Sclater, Cat. B. Brit. Mus. xi. p. 312 (1886).

Gymnostinops, as distinguished from *Ostinops*, with which the species were classed until Mr. Sclater separated them in his recent catalogue, contains four species, one of which, *G. montezumæ*, is widely distributed within our limits from Southern Mexico to Panama. Another, *G. guatemozinus*, has a very limited range in Northern Colombia and occurs on our southern frontier. The other two are purely South-American—one being found near Parà, at the mouth of the Amazons, and the other widely distributed over the whole upper basin of that river. No species of *Gymnostinops* occurs in South-eastern Brazil.

The bill of *Gymnostinops montezumæ* has the culmen slightly decurved, the frontal shield is produced backwards, as far as a line between the anterior edge of the eyes; its posterior outline is semicircular, the nostrils are just visible from above, not hidden as in *Eucorystes*; the lateral view of the sheath of the mandible is an isosceles triangle, and from the base of the sheath below the eye is a large subquadrangular naked patch divided by a narrow wedge-shaped strip of feathers along the edge of the ramus of the jaw; the feet are strong and insessorial; the wings are rather short and rounded, the third and fourth the longest, the second equalling the fifth, the first about equal to the eighth; the median secondaries are broad and rather longer than the outer ones; the tail is much rounded, the rectrices being also rounded at their tips and broad, the central feathers fall short of the longest, which are the next pair to them.

1. Gymnostinops montezumæ.

Cacicus montezuma, Less. Cent. Zool. p. 33, t. 7 [1]; Scl. P. Z. S. 1856, p. 300 [2]; P. Z. S. 1858, p. 358 [3]; P. Z. S. 1859, p. 365 [4]; Scl. & Salv. Ibis, 1859, p. 19 [5]; Moore, P. Z. S. 1859, p. 57 [6]; Taylor, Ibis, 1860, p. 111 [7]; Cass. Pr. Ac. Phil. 1867, p. 71 [8].

Ostinops montezumæ, Scl. P. Z. S. 1859, p. 380 [9]; Ibis, 1883, p. 148 [10]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [11]; ix. p. 104 [12]; Scl. & Salv. P. Z. S. 1864, p. 353 [13]; 1867, p. 279 [14]; 1870, p. 836 [15]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [16]; Frantz. J. f. Orn. 1869, p. 302 [17]; Nutting, & Ridgw. Pr. U.S. Nat. Mus. vi. pp. 383 [18], 401 [19]; Perez, Pr. U.S. Nat. Mus. 1886, p. 149 [20].

Gymnostinops montezumæ, Scl. Cat. B. Brit. Mus. xi. p. 313 [21].

Supra luride castaneus, capite toto et cervice, tibiis et subalaribus nigris, abdomen versus in castaneum transeunte, crisso dorso concolori; cauda flava, rectricibus duabus mediis nigricantibus; rostro nigro ad apicem abrupte flavo, pedibus nigris. Long. tota 19·0, alæ 10·4, caudæ 8·0 (rectr. med. 7·0), rostri a rictu 3·0, tarsi 2·2. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ mari similis sed multo minor. Long. tota 14·5, alæ 7·6, caudæ 5·7, rostri a rictu 2·3, tarsi 2·0.

Hab. MEXICO [18], Cordova (*Sallé* [2]), Jalapa (*de Oca* [4]), hot region of Vera Cruz (*Sumichrast* [16]), tierra caliente of the Atlantic coast (*le Strange*), Playa Vicente (*Boucard* [9]), Actopam, Barra de Santa Ana, Paso de la Milpa (*Perez* [20]); BRITISH HONDURAS (*Blancaneaux* [18]); GUATEMALA, Iguana (*O. S.* [5]), Choctum [18], Chisec [18], Quirigua, Yzabal, between Cahabon and San Luis (*O. S. & F. D. G.*), Tucuru and Tamahu (*Sarg*); HONDURAS, Omoa (*Leyland* [6]), San Pedro (*G. M. Whitely* [15]), Taulevi (*G. C. Taylor* [3 7]); NICARAGUA, Sucuya [18], Los Sabalos [19] (*Nutting*), Blewfields river (*Wickham* [14]); COSTA RICA, San Carlos, Angostura (*v. Frantzius* [17], *Carmiol* [12]), Sarapiqui, Tucurriqui, San Mateo, Aguacate, Orosi (*v. Frantzius* [17]); PANAMA, Lion Hill (*McLeannan* [11 13]).

The range of *Gymnostinops montezumæ* is very similar to that of *Eucorystes wagleri*, extending from the Eastern forests of Southern Mexico, through eastern Guatemala, and in Nicaragua southwards to Panama, embracing the forests of both Atlantic and Pacific coast-regions. Beyond Panama it does not extend, its place being apparently taken in Darien by the allied *G. guatemozinus*. It is absent from the western forests of the isthmus of Tehuantepec, and from the whole of the Pacific coast-region of Guatemala.

Sumichrast says *G. montezumæ* is confined to the hot region of Vera Cruz, seldom ascending the mountains to a height of 3300 feet above the sea [16]. In Guatemala we found it at lower elevations, but abundant in all the forest-country north of Coban to the confines of Peten, and in the lower portions of the valleys of the Polochic and Motagua rivers. It lives in colonies, and makes a nest, like that of *Eucorystes wagleri*, of grasses neatly woven. Each nest is suspended to the end of an outer bough of some isolated forest tree, and hangs some two or three feet in length, with the opening at the top. Often forty or fifty nests may be seen in one tree. Mr. Nutting says the birds, on entering the nests, shake them violently about, causing them to make a rustling sound [18].

The cry of this species is very loud and discordant, and as different as possible from the melodious notes of the various species of *Icterus*.

When fresh these birds and their immediate allies have a very peculiar odour.

The species most nearly allied to *G. montezumæ* is *G. bifasciatus* of the lower Amazons valley, a bird we have never seen, but which Cassin pronounced to be quite distinct, the thighs being chestnut instead of black.

2. **Gymnostinops guatemozinus.** (Tab. XXXII.)

Ostinops guatemozinus, Bp. Compt. Rend. xxxvii. p. 833 [1]; Cass. Pr. Ac. Phil. 1860, p. 138 [2]; Scl. & Salv. P. Z. S. 1879, p. 508 [3]; Scl. Ibis, 1883, p. 149 [4].

Cassicus guatemozinus, Cass. Pr. Ac. Phil. 1867, p. 71 [5].

Gymnostinops guatemozinus, Scl. Cat. B. Brit. Mus. xi. p. 314 [6].

Nigerrimus, crista verticali elongata, nigra; dorso medio, alarum tectricibus, supracaudalibus et crisso saturate castaneis; cauda flava, rectricibus duabus mediis abbreviatis, nigris; rostro nigro, apice flavo-aurantiaco, pedibus nigris. Long. tota 19·5, alæ 9·6, caudæ 7·6 (rectr. med. 5·3), rostri a rictu 2·7, tarsi 2·2.

♀ mari similis, sed multo minor. Long. tota 15·5, alæ 8·0, caudæ 6·5 (rectr. med. 4·4), rostri a rictu 2·0, tarsi 1·8. (Descr. maris et feminæ ex Remedios, Colombia. Mus. nostr.)

Hab. Panama, Turbo (*Wood*) [2 5].—Colombia [1 3 4 6].

The type of this beautiful species was obtained by M. Fontanier in the valley of the Magdalena river, and sent to the Paris Museum, where it was described by Bonaparte in 1853 [1]. Six or seven years afterwards, Mr. C. J. Wood, who accompanied Lt. Michler's exploring expedition to Darien, secured a single male specimen at "Camp Abert," on the banks of the Truando river, on our extreme southern border. We have no record of its occurrence further northwards, and along the line of the Panama Railway the allied *G. montezumæ* is found in plenty.

The late T. K. Salmon met with *G. guatemozinus* during his stay at Remedios, a village on the mountains dividing the Cauca and Magdalena valleys, situated at an elevation of 2360 feet above the sea, on the banks of the Ité river, an affluent of the Magdalena. Here he obtained the eggs of this species, which are pale pinkish white, sparsely spotted with large red-brown spots. The iris of the living bird is blue [3].

In comparing this species with *G. montezumæ*, the form of the tail is noticeable, the middle feathers being very much shortened. At first sight it appears as if they were not fully developed; but this is not the case. In all the species of *Ostinops*, *Gymnostinops*, and in *Eucorystes* the central tail-feathers fall short of the longest, but not nearly so much so as in *G. guatemozinus*.

We have figured one of Salmon's specimens, a male.

OSTINOPS.

Ostinops, Cabanis, Mus. Hein. i. p. 187 (1851); Sclater, Cat. B. Brit. Mus. xi. p. 315.

Mr. Sclater leaves eight species in *Ostinops*, after removing four and placing them in *Gymnostinops*. Only the most widely-ranging of these eight, viz. *O. decumanus*, occurs within our limits, in the State of Panama; the rest are spread over the greater part of the tropical forests of South America, our *O. decumanus* being the only species found in South-eastern Brazil.

Ostinops is very like *Gymnostinops* in general structure and the colour of its plumage, but may readily be distinguished by the space beneath the eye being fully feathered up to the base of the mandibular sheath.

1. Ostinops decumanus.

Xanthornus decumanus, Pall. Spic. Zool. fasc. vi. p. 1, t. 1 [1].

Ostinops decumanus, Salv. & Godm. Ibis, 1879, p. 200 [2]; Scl. & Salv. P. Z. S. 1879, p. 508 [3]; Scl. Ibis, 1883, p. 151 [4]; Scl. Cat. B. Brit. Mus. xi. p. 315 [5]; Tacz. Orn. Per. ii. p. 404 [6]; Salv. Ibis, 1885, p. 217 [7].

Cassicus citreus, Müller, Syst. Nat. Suppl. p. 87; Cass. Pr. Ac. Phil. 1866, p. 68 [8].

Oriolus cristatus, Bodd. Tabl. Pl. Enl. p. 21 [9].

Ostinops cristatus, Scl. P. Z. S. 1858, p. 455 [10]; Cass. Pr. Ac. Phil. 1860, p. 138 [11]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [12]; Salv. P. Z. S. 1870, p. 190 [13]; Pelz. Orn. Bras. p. 191 [14]; Wyatt, Ibis, 1871, p. 328 [15].

Niger, dorso postico, uropygio et crisso castaneis; cauda flava, rectricibus duabus mediis nigricantibus; rostro eburneo, pedibus nigris. Long. tota 17, alæ 8·8, caudæ 7·5 (rectr. med. 7·0), rostri a rictu 2·3, tarsi 2·0.
♀ mari similis sed minor. Long. tota 13·5, alæ 6·8, caudæ 6·4 (rectr. med. 6·2), rostri a rictu 1·9, tarsi 1·7.
(Descr. maris et feminæ ex Bugaba, Panama. Mus. nostr.)

Hab. Panama, Bugaba (*Arcé* [13]), Lion Hill (*M'Leannan* [12]), Chepo (*Arcé* [5]), Turbo (*Wood* [11]).—South America, from Colombia [2 3 15] to Bolivia and South-east Brazil [5]; Guiana [7].

This species is best known under Gmelin's title *cristatus*, but there can be no doubt that Pallas described and figured it under the name of *Xanthornus decumanus* in the sixth part of his 'Spicilegia Zoologica,' published in 1769, nineteen years before Gmelin's name appeared; *decumanus* also antedates Boddaert's *cristatus* (1783) and Müller's *citreus* (1776).

Ostinops decumanus was observed by Mr. C. J. Wood both at Turbo and on the banks of the Atrato [11]; and we have received specimens from Chepo, the line of the Panama Railway, and from as far north as Bugaba, in the Province of Chiriqui, so that there can be no doubt that the species belongs to our fauna, occupying, as it does, the whole of the State of Panama. But it does not proceed further into the isthmus, its name being absent from all the Costa-Rica lists.

Mr. Wyatt found *Ostinops decumanus* not uncommon in the lower mountain-districts on the east side of the valley of the Magdalena in Colombia. He found them nesting during the whole of his three months' stay in the country. They breed in colonies, making long pendulous nests. A large colony he observed had established themselves in a leafless tree, in a valley near San Nicolas, in March. Every evening, just before sunset, they held a most discordant concert, flying over the valley, wheeling round, and then diving down to the bottom of their bag-shaped nests, some of which were so loosely woven that he could see the bird, when in, struggling to get down to the bottom. The iris, he adds, is bright sky-blue [15].

Eggs obtained by Salmon [3] at Remedios, on the opposite side of the valley, are described as pale greenish blue, sparsely spotted with dark brown spots.

b. *Clypeus frontalis ad basin vix incrassatus.*

CASSICUS.

Cacicus, Cuvier, Leç. d'Anat. Comp. i. t. 2 (1800).
Cassicus, Illiger, Prodr. p. 214; Scl. Cat. B. Brit. Mus. xi. p. 320.

Mr. Sclater now includes nine species in *Cassicus*, having removed *C. solitarius* and *C. holosericeus* into the genus *Amblycercus* since writing his synopsis of this family in 'The Ibis' for 1883.

Cassicus, as thus restricted, is divisible into two groups—one having the rump red, with the barbs of the feathers towards the end destitute of barbules, and the other yellow, with the barbs of the feathers furnished with short barbules throughout. One of each of these groups is found within our region, both in the State of Panama, and *C. microrhynchus* as far north as Nicaragua. The southern species are spread over the whole of Tropical America to South-eastern Brazil.

The bill in *C. microrhynchus* has the culmen considerably arched, the proximal end being rounded; the nostrils are much as in *Ostinops*, quite open, and devoid of any overhanging membrane; the mandible is feathered up to the base of the sheath; the wings are moderate, the third quill being the longest, the second and fourth equal, and the first shorter than the fifth; the tail is moderately rounded.

The different species of *Cassicus* live in colonies, and build hanging purse-like nests, similar to those of the various species of *Ostinops* and of *Eucorystes*.

1. Cassicus flavicrissus.

Cassiculus flavicrissus, Sclater, P. Z. S. 1860, p. 276[1].
Cassicus flavicrissus, Scl. & Salv. Ibis, 1871, p. 329[2]; P. Z. S. 1879, p. 509[3]; Scl. Ibis, 1883, p. 158[4]; Scl. Cat. B. Brit. Mus. xi. p. 322[5]; Tacz. Orn. Per. ii. p. 411[6].
Cassicus icteronotus, Cass. Pr. Ac. Phil. 1860, p. 139[7] (nec Vieill.).
Cassiculus icteronotus, Lawr. Ann. Lyc. N. Y. vii. p. 297[8].
Cassiculus chrysonotus ?, Cass. Pr. Ac. Phil. 1860, p. 139[9] (nec d'Orb. & Lafr.).
Cassicus vitellinus, Lawr. Pr. Ac. Phil. 1864, p. 107[10]; Cass. Pr. Ac. Phil. 1867, p. 66[11].
Cacicus persicus, Scl. & Salv. P. Z. S. 1864, p. 353[12] (nec Linn.).

Nitide niger, plaga tectricum alarium superiorum, dorso postico, cum tectricibus supracaudalibus, crisso et vix dimidio caudæ basali aurantio-flavis; rostro eburneo, pedibus nigris. Long. tota 11·0, alæ 7·1, caudæ 4·5, rostri a rictu 1·5, tarsi 1·2.

♀ mari similis, sed minor et minus nitida. Long. tota 9·0, alæ 5·4, caudæ 3·8, rostri a rictu 1·3, tarsi 1·1.
(Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Hab. Panama, Lion Hill (*M'Leannan* [8 10 12]), Turbo (*Wood* [7 9 11]).—Colombia [2 3]; Ecuador [1]; Peru [6].

Though noticed on the isthmus of Darien in 1860, and that of Panama in 1861, it was ten years before this bird was placed under its present name. During this time

Pl. 53

it stood either as the old well-known *C. persicus* or its synonym, *C. icteronotus*; as *C. chrysonotus* of Peru and Bolivia, or as a distinct species, *C. vitellinus*. It ultimately proved to be inseparable from a species of Western Ecuador described by Mr. Sclater in 1860 under the specific name it now bears [1]. It has since been traced further along this coast to Western Peru [6] and into the Magdalena [2] and Cauca [3] valleys of Colombia. In the State of Panama we have no tidings of it beyond the line of railway.

The bird most nearly allied to *C. flavicrissus* is certainly *C. persicus*, but it may readily be distinguished by the amount of yellow on the tail, which in the former occupies less than half, and in the latter nearly two thirds of the base of the rectrices.

Mr. Wyatt found *C. flavicrissus* on the banks of the Lake of Paturia, in the Magdalena valley, where there were several colonies nesting in the month of March in the low bushes which overhung the water. Most of the pendulous nests were within reach of the canoe; they were not all of the same pattern, some having the entrance at the top, so as to form a long narrow bag; in others the top was roofed over, and the entrance was at the side. The hen lays two cream-coloured eggs, blotched with purple and brown. The iris of the living bird is pale blue [2].

Salmon also found this species breeding at Remedios 2360 feet above the sea. The eggs he brought home are described as white, sparingly spotted with dark brown, chiefly at the larger end. He also says the iris is blue [3].

Mr. C. J. Wood [7] observed *C. flavicrissus* to be very abundant at Turbo, where it was always seen in large parties and very noisy, especially in the morning, though their notes were, he considered, rather agreeable.

2. Cassicus microrhynchus.

Cassiculus microrhynchus, Scl. & Salv. P. Z. S. 1864, p. 353 [1]; Lawr. Ann. Lyc. N. Y. viii. p. 180 [2].

Cacicus microrhynchus, Salv. P. Z. S. 1867, p. 142 [3]; 1870, p. 190 [4]; Ibis, 1872, p. 317 [5].

Cassicus microrhynchus, Cass. Pr. Ac. Phil. 1867, p. 65 [6]; Frantz. J. f. Orn. 1869, p. 303 [7]; Scl. Cat. B. Brit. Mus. xi. p. 325 [8].

Cassicus uropygialis, Cass. Pr. Ac. Phil. 1860, p. 139 [9]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [10] (nec Lafr.).

Intense niger, uropygio coccineo; rostro viride-eburneo, pedibus nigris. Long. tota 8·5, alæ 5·0, caudæ 3·6, rostri a rictu 1·1, tarsi 1·1.

♀ mari similis, sed minor et minus nitida. Long. tota 8·0, alæ 4·5, caudæ 3·1, rostri a rictu 1·0, tarsi 1·0. (Descr. maris et feminæ ex Lion Hill, Panama. Mus. nostr.)

Hab. Nicaragua, Chontales (*Belt* [5]), Greytown (*Holland* [7]); Costa Rica, Tucurriqui (*v. Frantzius* [7]), Peje (*Carmiol* [8]); Panama, Bugaba [4], Cordillera de Tolé [3], Santiago de Veraguas [3], Santa Fé [3] (*Arcé*), Lion-Hill Station (*M'Leannan* [1 2 10]), Turbo (*Wood* [9]).

Cassicus microrhynchus has a much more northern range than *C. flavicrissus*, having

been found in the Chontales district of Nicaragua by the late Thomas Belt [5], and also at Greytown by Holland [7]; and it occurs in all the intervening country as far as the Truando; but immediately to the southward its place is taken by the closely allied *C. uropygialis*, from which it differs in having a much smaller and weaker bill; hence its name.

Nothing has been written of its habits.

CASSICULUS.

Cassiculus, Swainson, Zool. Journ. iii. p. 352 (1827); Scl. Cat. B. Brit. Mus. xi. p. 328.

Cassiculus, as now restricted, is a monotypic genus, its range being restricted to Western Mexico. In the arrangement of the colours of the plumage it resembles *Cassicus flavicrissus* and its allies, but its sharper, more cuneiform bill and much straighter culmen, its occipital crest, and the normal structure of the feathers of the lower back sufficiently distinguish it. On the other hand, the shape of the nostril, which is that of typical Cassicinæ, at once separates it from *Amblycercus*, from which it is still further removed by its long wings. The third quill is slightly the longest, the fourth and fifth are next in length, then the second, the first and sixth being subequal; the tail is rather long and rounded, the feathers being somewhat pointed.

1. Cassiculus melanicterus.

Icterus melanicterus, Bp. Journ. Acad. Philad. iv. p. 389 [1].

Cassicus melanicterus, Cass. Proc. Ac. Phil. 1867, p. 66 [2].

Cassiculus melanicterus, Scl. P. Z. S. 1859, p. 380 [3]; Ibis, 1883, p. 156 [4]; Cat. B. Brit. Mus. xi. p. 328 [5]; Dugès, La Nat. i. p. 139 [6]; Lawr. Mem. Bost. Soc. N. H. ii. p. 278 [7]; Bull. U. S. Nat. Mus. no. 4, p. 23 [8]; Salv. P. Z. S. 1883, p. 422 [9].

Cassiculus coronatus, Sw. Phil. Mag. new ser. i. p. 436 [10].

Icterus diadematus, Temm. Pl. Col. 482 [11].

Niger, crista elongata, nigra; dorso postico, alarum tectricibus minoribus et crisso flavis; cauda flava, rectricibus duabus mediis omnino nigris, extima utrinque in pogonio externo quoque nigra; rostro viridi-eburneo, pedibus nigris. Long. tota 11·0, alæ 6·0, caudæ 5·3, rostri a rictu 1·6, tarsi 1·3.

♀ cinerascente-nigra, aliter mari similis, sed rectricibus omnibus in pogonio externo fusco-nigricantibus. Long. tota 10·5, alæ 5·0, caudæ 4·3, rostri a rictu 1·4, tarsi 1·1. (Descr. maris et feminæ ex Mazatlan, Mexico. Mus. nostr.)

Hab. Mexico [11] (*M'Clellan* [1]), Mazatlan (*Grayson* [7], *Bishoff* [7], *Forrer* [5]), Presidio (*Forrer* [5]), Tepic (*Grayson* [7]), plains of Colima, Rio de Coahuana (*Xantus* [7]), Acapulco [2] (*Markham* [9]), Guerrero (*Dugès* [6]), Temiscaltepec (*Bullock* [10]), Oaxaca [6], Rio Grande [3] (*Boucard* [6]), Morelia (*le Strange*), Barrio, Chihuitan, Tehuantepec city (*Sumichrast* [8]), Tonalá, Chiapas (*Sumichrast*).

This is an abundant species in Western Mexico, from Mazatlan to Tehuantepec, but

we have no records of its occurrence on the eastern side of the cordillera, nor does it pass into Guatemala.

Grayson, who had abundant opportunities of observing this species in Western Mexico, says it is common and a constant resident, only shifting its quarters from one part of the forest to another in flocks of from ten to thirty. The nests are often three or four feet long, and are hung in the branches of a mimosa, acacia, or any large tree affording an ample shade. These nests are made of very long, coarse, and tough grass, and also narrow strips of palm-leaf; other materials, such as slender pliant creepers, and even twine and thread from some neighbouring village, are sometimes employed. The entrance is near the top, and is small, and nearly closed when the bird is at the bottom of her pocket-shaped nest. The structure is apparently loosely put together, admitting the air to pass freely through, but it is not easily pulled apart or detached from the bough to which it is hung without the use of a knife.

The female builds the nest, the male only keeping watch whilst she is inside, or accompanying her in search of materials. The eggs are usually five in number, rather longer than those of other members of the Icteridæ, though similar in other respects. The ground-colour is pale blue with numerous brownish-black spots and zigzag marks[7].

CASSIDIX.

Cassidix, Lesson, Traité d'Orn. i. p. 433 (1831); Scl. Cat. B. Brit. Mus. xi. p. 329.

Cassidix is also a monotypic genus, its single species being a bird of very wide range throughout the tropics of America, from Southern Mexico to Paraguay.

It has been frequently placed with the Quiscaline section of the Icteridæ on account, doubtless, of the general aspect of its plumage; but recently Mr. Sclater has removed it to the Cassicinæ, and in so doing we think he acted rightly. The open, non-membranous nostril and the frontal shield indicate this position for it. The status of *Cassidix* as a distinct genus rests chiefly upon the peculiar elongated feathers of the sides of the neck in the male, and to a less degree in the female. The first primary, too, is the longest of the wing, an arrangement we do not find in the other genera of Cassicinæ.

The bill is stout, almost Corvine in bulk, the culmen considerably arched; there is a rather deep groove running from the nostril parallel to the culmen. As already mentioned, the first primary is the longest of the wing, from it the rest gradually and regularly decrease in length; the longest secondaries reach to the tip of the sixth primary; the tail is moderately and evenly rounded.

1. Cassidix oryzivora.

Oriolus oryzivorus, Gm. S. N. i. p. 386[1].

Cassidix oryzivora, Scl. P. Z. S. 1858, p. 98[2]; 1859, p. 140[3]; Ibis, 1884, p. 165[4]; Cat. B. Brit. Mus. xi. p. 329[5]; Moore, P. Z. S. 1859, p. 57[6]; Scl. & Salv. P. Z. S. 1864, p. 354[7]; 1867,

p. 279[8]; 1879, p. 510[9]; Salv. P. Z. S. 1870, p. 191[10]; Ibis, 1885, p. 219[11]; Salv. & Godm. Ibis, 1879, p. 201[12]; 1880, p. 123[13]; Tacz. Orn. Per. ii. p. 435[14].

Cassicus ater, Vieill. N. Dict. d'Hist. Nat. v. p. 363[15].

Cassidix ater, Pelz. Orn. Bras. p. 201[16].

Cassidix mexicanus, Less. Traité d'Orn. i. p. 433[17]; Cass. Pr. Ac. Phil. 1866, p. 416[18].

Scaphidura crassirostris, Sw. An. in Menag. p. 301[19].

Cassidix crassirostris?, Moore, P. Z. S. 1859, p. 57[20].

Atro-violaceus, colli plumis elongatis, expansis; rostro et pedibus nigris. Long. tota 13·5, alæ 7·5, caudæ 6·0, rostri a rictu 1·5, tarsi 1·8.

♀ mari similis, sed minor et minus nitida. (Descr. maris et feminæ ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico[2], Orizaba[5]; Guatemala, Choctum (*O. S. & F. D. G.*[5]); Honduras, Chilomo (*Leyland*[6]); Nicaragua, Blewfields River (*Wickham*[8]); Panama, Chitra, Calobre, Calovevora (*Arcé*[10]), Lion Hill (*M'Leannan*[7]).—South America, Colombia[9] to South Brazil[16 19] and Paraguay[15], Amazons valley[16], Guiana[1 11].

Cassin, when writing his 'Studies of Icteridæ,' attempted to separate *Cassidix oryzivora* into a number of species, using for them several of the names previously proposed by older authors, and supplementing them with some of his own. Mr. Sclater in his recent examination of this question confessed his inability to recognize more than one species; nor are we able to do more. *Cassidix oryzivora*, therefore, to us is a species of very wide range, with certain trifling points of variation to be expected in a bird so extensively distributed.

This species is an inhabitant of the tropical forests wherever it is found. We know little of it in Mexico, but there is a skin in the Sclater collection in the British Museum said to have come from Orizaba, and it is more than probable that it is to *C. oryzivora* that Sumichrast refers as another *Quiscalus* in the hot region with plumage remarkable for the brilliancy of its reflections of violet and purple *. In Guatemala it is by no means a common bird, as we only once met with it at Choctum, a small flock frequenting the edge of the clearing in which the hamlet is situated; they were noisy, gregarious birds, but we did not observe any of their breeding-arrangements. Leyland says they frequent cornfields near Omoa in great numbers[6]. In the more southern parts of Central America it apparently becomes more common, judging from the number of skins sent us, but we have no notes of its habits. In Colombia Salmon found it in several places in the State of Antioquia[9]; he sent home two of the eggs, which are quite white, and thus unlike the usual type of Icterine birds. The iris in life is white.

B. *Nares operculo corneo obtectæ.*

AMBLYCERCUS.

Amblycercus, Cabanis, Mus. Hein. i. p. 190 (1851); Scl. Cat. B. Brit. Mus. xi. p. 326.

Two rather closely allied species constitute this genus, one of which, *A. holosericeus*,

* Mem. Bost. Soc. N. H. i. p. 553.

is a very common species within our region. *Amblycercus* has been placed both with *Cassicus* and *Cassiculus*, but no doubt it has characters to distinguish it from both those genera. In the first place the nostrils are covered by a hard horny operculum, leaving the nasal orifice a comma-shaped slit, the tail of the comma being directed outwards. This structure is not found in the more normal Cassicinæ, and we have had to modify Mr. Sclater's characters in order to include *Amblycercus*. This operculum is not like the membranous covering of the nostril in the other subfamilies of Icteridæ, being as hard and horny a substance as the sheath of the bill itself. The culmen is straight, and the points of the jaws rounded horizontally and flattened; the feet are stout, and the tarsi comparatively longer than in *Cassicus*. The wings are short and very much rounded; the fourth, fifth, and sixth quills are subequal, and slightly longer than the seventh, eighth, and ninth, the third equals the seventh, the second is about equal to the longest secondaries, and the first is much shorter still. The tail is much rounded.

The short, rounded wing presents another obvious point of difference from *Cassicus* and *Cassiculus*.

As in *Cassiculus* the feathers of the lower back are normal, the barbs being fully furnished with barbules.

1. **Amblycercus holosericeus.**

Sturnus holosericeus, Licht. Preis Verz. Mex. Vög. p. 1 (*cf.* J. f. Orn. 1863, p. 55)[1].

Cacicus holosericeus, Salv. Cat. Strickl. Coll. p. 262[2].

Cassicus holosericeus, Scl. Ibis, 1883, p. 163[3]; Boucard, P. Z. S. 1883, p. 445[4]; Tacz. Orn. Pér. ii. p. 415[5].

Amblycercus holosericeus, Scl. Cat. B. Brit. Mus. xi. p. 327[6].

Amblyramphus prevosti, Less. Cent. Zool. p. 150, t. 54[7].

Amblycercus prevosti, Cab. J. f. Orn. 1861, p. 10[8]; Cass. Pr. Ac. Phil. 1867, p. 73[9]; Lawr. Ann. Lyc. N. Y. ix. p. 104[10]; Frantz. J. f. Orn. 1869, p. 302[11].

Cassiculus prevosti, Scl. P. Z. S. 1856, p. 301[12]; 1859, pp. 365[13], 380[14]; 1860, p. 276[15]; 1864, p. 174[16]; Scl. & Salv. Ibis, 1859, p. 19[17]; 1860, p. 34[18]; P. Z. S. 1864, p. 353[19]; 1870, p. 836[20]; Moore, P. Z. S. 1859, p. 57[21]; Lawr. Ann. Lyc. N. Y. vii. p. 297[22]; Ann. Lyc. N. Y. viii. p. 180[23]; Salv. P. Z. S. 1867, p. 142[24]; 1870, p. 190[25]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553[26].

Cassicus prevosti, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 23[27]; Nutting & Ridgw. Pr. U. S. Nat. Mus. vi. pp. 383[28], 402[29].

Cassicus, sp.?, Bp. P. Z. S. 1837, p. 115[30].

Nigerrimus, unicolor; rostro eburneo, pedibus nigris. Long. tota 9·5, alæ 4·2, caudæ 4·4, rostri a rictu 1·2, tarsi 1·3. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

♀ mari similis.

Hab. Mexico[7] (*Deppe*[1], *Sallé*[12]), valley of Mexico (*White*[16]), hot and temperate regions of Vera Cruz (*Sumichrast*[26]), Jalapa (*de Oca*[13]), Teotalcingo and Playa Vicente (*Boucard*[14]), Guichicovi, Sta. Efigenia (*Sumichrast*[27]), Yucatan (*Gaumer*[4]); British Honduras, Belize (*Blancaneaux*); Guatemala (*Velasquez*[30], *Constancia*[2]), Yzabal[18],

Dueñas[17 18] (*O. S.*), Choctum, Retalhuleu (*O. S. & F. D. G.*), Peten (*Leyland*[21]); HONDURAS, Omoa (*Leyland*[21]), San Pedro (*G. M. Whitely*[20]); NICARAGUA, Greytown (*Holland*[23]), Sucuyá[28], Los Sabalos[29] (*Nutting*); COSTA RICA (*Hoffmann*[8]), San José, Turrialba (*v. Frantzius*[10 11], *Carmiol*[10]), Tucurriqui (*v. Frantzius*[11]), Irazu (*Rogers*); PANAMA, Calovevora[25], Calobre[25], Santa Fé[24] (*Arcé*), Lion Hill Station (*M'Leannan*[19 22]), Paraiso Station (*Hughes*).—COLOMBIA; ECUADOR[14]; PERU[5]; VENEZUELA[6].

Amblycercus holosericeus is a very familiar species in Mexico and Central America, where it is found throughout the hot and temperate districts from Southern Mexico to Panama, and thence southwards to Ecuador and Peru.

Its habits are very different from those of *Cassicus*, being of a skulking disposition, frequenting tangled thickets, where it occupies itself in breaking small dead branches, probably for insect food.

We never observed it in flocks; but Mr. Nutting, who met with it in several parts of Nicaragua, says it is probably gregarious[28 29].

Sumichrast, who ascribes *A. holosericeus* to the hot and temperate regions of Vera Cruz, says it does not reach the altitude of Orizaba, the limit of its upward range not passing 3380 feet[26]. In Guatemala, however, we found it to be common at Coban at an elevation of between 4000 and 4500 feet, and at Dueñas at nearly 5000 feet.

The iris in life is light yellow, and the bill yellowish green.

Subfam. II. *AGELÆINÆ*.

Nares plus minusve membrano obtectæ; mesorhinum altum haud dilatatum, complanatum aut modice rotundatum, culmen fere rectus; alarum plumæ secundariæ externæ haud elongatæ.

DOLICHONYX.

Dolichonyx, Swainson, Zool. Journ. iii. p. 351 (1827); Scl. Cat. B. Brit. Mus. xi. p. 331.

A monotypic genus containing the single well-marked and well-known species described below.

In coloration *Dolichonyx* curiously resembles *Calamospiza bicolor*, but the two birds are not by any means nearly related.

D. oryzivorus has a short stout Fringilline bill; the commissure of the maxilla is angulated, but there is no notch near the extremity; the nostrils are large and open, and situated at the lower end of the nasal fossa, a membrane lying along the upper margin; the rictal bristles are very short; the wings are long, the outermost primary being the longest, from which the rest fall rapidly away, the longest secondaries being about equal to the shortest primary; the extremities of the tail-feathers are very acute; the tarsi are rather long and the feet stout, the hind claw being long and slightly decurved.

The male assumes a breeding-dress in spring and changes it again in autumn, when it resembles the female. When in most perfect spring plumage we believe the black

feathers of the under surface have light-coloured tips which wear off very soon, probably before the breeding-season has commenced. One of our specimens from Cozumel I., shot on 26th April, has the feathers perfect and edged with light fuscous; another, shot on the 20th May, is almost quite black beneath, but on near inspection the ends of the barbs of each feather are broken close to the commencement of the black colour.

1. **Dolichonyx oryzivorus.**

Emberiza oryzivora, Linn. Syst. Nat. i. p. 311 [1].

Dolichonyx oryzivorus, Sw. Phil. Mag. new ser. i. p. 435 [2]; Gould, Voy. 'Beagle,' iii. p. 106 [3]; Gosse, B. Jam. p. 229 [4]; Scl. P. Z. S. 1858, p. 72 [5]; Ibis, 1884, p. 2 [6]; Cat. B. Brit. Mus. xi. p. 331 [7]; Salv. Ibis, 1864, p. 386 [8]; 1866, p. 194 [9]; 1885, pp. 191 [10], 218 [11]; Cass. Pr. Ac. Phil. 1866, p. 15 [12]; Pelz. Orn. Bras. p. 199 [13]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 149 [14]; Coues, B. N. W. p. 178 [15]; Key, N. Am. B. ed. 2, p. 400 [16]; Scl. & Salv. P. Z. S. 1879, p. 509 [17]; Gundl. Orn. Cub. p. 97 [18]; Zeledon, Cat. Av. de Costa Rica, p. 10 [19]; Tacz. Orn. Pér. ii. p. 421 [20].

Niger, nucha lata pallide cervina, interscapulii plumis fusco utrinque limbatis; secundariis internis et primariis externis quoque fusco marginatis; scapularibus et dorso postico cum supracaudalibus albidis, dorso medio cinerascente; remigibus nigris, ad apicem cinerascentibus; rostro corneo, mandibula pallida, pedibus corneis. Long. tota 6·0, alæ 3·8, caudæ 2·8, rostri a rictu 0·6, tarsi 1·0.

♀ (et mas in vestitu hiemali) supra nigra plumis singulis fusco limbatis; superciliis et corpore subtus sordide ochraceis, hypochondriis fusco striatis. (Descr. maris et feminæ ex Lighthouse reef, British Honduras. Mus. nostr.)

Hab. North America, Southern Canada and Eastern States to the Great Plains.—Mexico, Tableland (*Bullock* [2]), Northern Yucatan [7] and Cozumel Island [10] (*Gaumer*, *Devis*); British Honduras, Northern two Cays, Lighthouse reef (*O. S.* [8 9]); Costa Rica (*Zeledon* [17]); Panama, Paraiso Station (*Hughes* [7]), Chepo (*Arcé* [7]).—South America, Colombia [16] to Paraguay [14], Amazons valley [7 13] and Guiana [11]; Galapagos Islands [3]; Cuba [18]; Jamaica [4].

Dolichonyx oryzivorus is a very familiar species in North America, as it passes over the whole of the Southern States in its migrations, and breeds in the Northern States and Canada. The spring migration lasts from March to May, and the autumn during August, September, and part of October. In winter these birds are scattered over the greater part of South America as far as Paraguay, and we have records of it in Colombia, Ecuador, Peru, Bolivia, the Amazons valley, and Guiana. In Cuba and Jamaica it appears only as a bird of passage, as it does not remain during the winter months. Gundlach says it arrives in Cuba at the beginning of September in large flocks, which during their stay frequent rice-fields, doing much damage to the crops; they soon disappear for the south, but return again in May for a few days on their journey northwards [18]. According to Mr. Gosse their stay in Jamaica lasts during October and the early part of November; they return with the spring rains in April for a few days [4].

The only record we have of the occurrence of this species in Mexico is that of

Swainson, who states that Bullock's specimens submitted to him were obtained on the tableland [2]. In Yucatan and the islands of the east coast of British Honduras *D. oryzivorus* seems to be much more numerous, Mr. Gaumer having procured many examples. It was on this coast too that Salvin met with it on a small coral islet at the northern end of Lighthouse Reef, one of two islands called Northern two Cays; this was on the 20th May, 1862, a very late date for the occurrence of individuals so far south.

It also occurs in Costa Rica, its name being included in Mr. Zeledon's list, but it is not mentioned by other writers on Costa-Rican birds. In the State of Panama it has frequently been observed. We thus seem to trace the western limit of the line of the migration of this species. In passing southwards the western flocks do not, as a rule, go further westwards than the promontory of Yucatan; thence they follow the coast-line southwards to Panama, and then spread at large over the continent of South America. The eastern border is not so definite. *D. oryzivorus* is recorded from the Bahamas and from Grenada, but it is rare in British Guiana; a large number of birds, therefore, probably cross the Caribbean Sea from Cuba and Jamaica direct to the mainland of South America.

In their spring migration Dr. Gundlach tells us the male birds arrive in flocks apart from the females, but that in autumn the sexes all associate together.

As already stated, the males lose their dark plumage after the breeding-season and assume the female dress, which again is changed at the approach of spring.

Dolichonyx oryzivorus makes a flimsy nest of dried grasses on the ground, and lays four or five eggs of a dull bluish-white colour, sometimes brownish-white spotted and blotched with dark chocolate or blackish-brown surface-marks and others of paler colour in the shell [15].

The notes of this species are described as very pleasing, many males often singing together.

MOLOTHRUS.

Molothrus, Swainson, Faun. Bor.-Am. ii. p. 277 (1831); Coues, Key N. Am. B. ed. 2, p. 401; Scl. Cat. B. Brit. Mus. xi. p. 332.

Mr. Sclater, in his recent catalogue of the Icteridæ, includes nine species of *Molothrus* which are distributed over the greater part of America, the bird of the northern continent (*Molothrus pecoris*) extending from Canada southwards and *Molothrus bonariensis* of the southern continent reaching the Straits of Magellan. Two species occur within our region—the northern *M. pecoris* in both its forms occurring over the greater portion of Mexico; *M. æneus*, on the other hand, is found throughout our region, and crosses the Rio Grande into Texas.

The curious habit of all members of this genus of the females laying their eggs in other birds' nests, and leaving the duties of incubation and rearing their young to foster-parents, has been very fully described by various authors—one of the most interesting

accounts being that given by Mr. Hudson (P. Z. S. 1874, p. 153 *et seq.*), in which he gives the details of his observations on three species of *Molothrus* found in the vicinity of Buenos Ayres.

Like *Dolichonyx*, *Molothrus* has a short, stout, conical bill, the mesorhinium is rounded, the culmen being slightly curved, the nostrils are open at the extremity of the nasal fossa, the tomia of the maxilla is somewhat abruptly bent beneath the nostril, the feet are stout (especially the hind toe and its claw): the wings are moderately long, the second and third quills being equal and longest; the first falls a little short of these; the fourth, in *M. pecoris*, is considerably shorter than the first, in *M. æneus* they are equal; the tail is slightly rounded, each feather being rounded at the end and not pointed as in *Dolichonyx*.

1. Molothrus pecoris.

Fringilla pecoris, Gm. S. N. i. p. 910 [1].

Agelaus pecoris, Sw. Phil. Mag. new ser. i. p. 436 [2].

Psarocolius pecoris, Wagl. Isis, 1831, p. 527 [3].

Molothrus pecoris, Scl. P. Z. S. 1857, p. 213 [4]; 1859, p. 365 [5]; 1860, p. 252 [6]; Ibis, 1884, p. 3 [7]; Cat. B. Brit. Mus. xi. p. 333 [8]; Baird, Mex. Bound. Surv. ii. Zool., Birds, p. 18 [9]; Cass. Pr. Ac. Phil. 1866, p. 17 [10]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 154 [11]; Coues, B. N. W. p. 180 [12].

Molothrus obscurus, Cass. Pr. Ac. Phil. 1866, p. 18 [13].

Molothrus pecoris, var. *obscurus*, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 24 [14]; Mem. Bost. Soc. N. H. ii. p. 280 [15].

Molothrus ater, Coues, Key N. Am. B. ed. 2, p. 402 [16]; Check-List N. Am. B. p. 248 [17]; Perez, Pr. U. S. Nat. Mus. 1886, p. 151 [18].

Purpureo-niger, viridi-æneo micans; capite toto undique cum cervice et pectore antico fumoso-brunneis, hoc colore ad corpus purpureo marginato; rostro et pedibus nigris. Long. tota 6·5, alæ 3·9, caudæ 2·9, rostri a rictu 0·7, tarsi 0·85.

♀ fusca, fere unicolor, dorsi plumis medialiter, alis et cauda vix saturatioribus; subtus paulo dilutior, gula cærulescente. Long. tota 5·5, alæ 3·4, caudæ 2·3, rostri a rictu 0·6, tarsi 0·85. (Descr. maris et feminæ ex Mazatlan, Mexico. Mus. nostr.)

Hab. North America, from the Atlantic to the Pacific Ocean, and from Southern Canada southwards.—Mexico [3] (*Sallé* [6]), Los Nogales (*Kennerly* [9]), Mazatlan (*Grayson* [15], *Forrer* [8]), Manzanilla Bay (*Xantus* [15]), tableland near Mexico (*Bullock* [2]), Orizaba [6] (*Botteri* [4]), Jalapa (*de Oca* [5]), Huexotitla (*Perez* [18]), Tehuantepec city (*Sumichrast* [14]).

There are said to be two races of this well-known bird, differing in size. The larger and more northern bird has an extensive range throughout the States, and is migratory, spending the winter months in the south, when it reaches as far south as Southern Mexico. The smaller bird is stated to be resident in Texas, Arizona, and California, as well as in Southern and Western Mexico. Thus in the winter months both birds are found in the same districts.

This difference in size is represented in male specimens before us by a difference in

the length of the wing of about 0·5 inch. In specimens admitted to belong to *M. pecoris* the length of the wing varies from 4·5 to 4·0 inches [16]; in one of our Mexican examples of *M. obscurus* it measures 3·9, in another 3·95, and in the average of *M. obscurus* 3·75 inches [16]. Thus the dimensions, so far as regards the length of the wing, of *M. pecoris* and *M. obscurus* appear to show a complete gradation between the two, and that there is no line of demarcation whereby they may be distinguished.

The habits of *M. pecoris*, and how the hen bird lays its eggs in other birds' nests, have been very fully described by various authors, Dr. Coues's account being especially full of interest [12]. Little has been recorded of this bird in Mexico beyond a note to the following effect by the late A. J. Grayson [14]:—"The birds whose nests are selected by *M. pecoris* in which to deposit its egg are usually smaller than itself. In the vicinity of Mazatlan the beautiful and basket-shaped nest of *Vireosylvia flavo-viridis* seems to be the one preferred. This Vireo is a summer visitant from the regions of Central America; soon after its arrival in May and the early part of June nidification is commenced. The nest is generally placed pendent between two branches usually low down. *V. flavo-viridis* is an abundant species on a small, thickly-wooded peninsula near the sea-shore, but a short distance from the city of Mazatlan. Here the Cow-bird was seen stealthily seeking an opportunity to drop its egg in the nest of the Vireo. She at length finds an opportunity, in the absence of the owners of the nest, but not before one egg at least has been laid does she deposit hers by its side, otherwise the Vireo would abandon it. The intruder's egg is first hatched, and the others a little after.

"The larger size and the greater strength of the foundling absorbs all the attention of the poor dupe of a dame, and she proves a very affectionate and assiduous nurse to the stranger.

"The Cow-bird is very numerous in the region of Mazatlan and Tepic, and is, in fact, pretty generally distributed over Mexico. About Mazatlan they are seen in large flocks, often in company with the larger *M. æneus*."

The eggs are white, thickly covered with fine spots of ashy and purplish brown; others are blotched with large spots of purple and vinous brown.

2. Molothrus æneus.

Psarocolius æneus, Wagl. Isis, 1829, p. 758 [1].

Agelaius æneus, Cass. Pr. Ac. Phil. 1848, p. 90 [2].

Molothrus æneus, Scl. P. Z. S. 1856, p. 300 [3]; 1859, pp. 365 [4], 381 [5]; Ibis, 1884, p. 4 [6]; Cat. B. Brit. Mus. xi. p. 334 [7]; Scl. & Salv. Ibis, 1860, p. 34 [8]; R. Owen, Ibis, 1861, p. 61 [9]; Cab. J. f. Orn. 1861, p. 81 [10]; Cass. Pr. Ac. Phil. 1866, p. 18 [11]; Lawr. Ann. Lyc. N. Y. ix. p. 104 [12]; Bull. U.S. Nat. Mus. no. 4, p. 24 [13]; Mem. Bost. Soc. N. H. ii. p. 281 [14]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [15]; Frantz. J. f. Orn. 1869, p. 303 [16]; Salv. P. Z. S. 1870, p. 191 [17]; Cat. Strickl. Coll. p. 265 [18]; Merrill, Bull. Nutt. Orn. Club, ii. p. 85 [19]; Nutting, Pr. U.S. Nat. Mus. v. p. 392 [20]; Boucard, P. Z. S. 1883, p. 445 [21]; Perez, Pr. U.S Nat. Mus. 1886, p. 151 [22].

Icterus bonariensis, Bp. P. Z. S. 1837, p. 116 [23] (nec Gm.).
Molothrus robustus, Cab. Mus. Hein. i. p. 193 [24].

Sericeo-æneus, alis caudaque nigris, extus purpurascente violaceis, subalaribus et crisso purpureo lavatis. Long. tota 8·0, alæ 4·7, caudæ 3·3, rostri a rictu 0·9, tarsi 1·2. (Descr. maris ex Calobre, Panama. Mus. nostr.)

♀ obscure fusca, purpureo vix tincta, subtus dilutior. Long. tota 6·8, alæ 4·0, caudæ 2·8, rostri a rictu 0·8, tarsi 1·0. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America, Rio Grande valley, Texas [19].—Mexico [24], Mazatlan (*Gambel* [11], *Grayson* [14], *Forrer* [7]), Presidio (*Forrer* [7]), Manzanilla Bay and mountains of Colima (*Xantus* [14]), Puente Nacional (*Pease* [2]), hot and temperate regions of Vera Cruz (*Sumichrast* [15]), Izucar de Matamoros, Chietla, Acatlan (*Perez* [22]), Cordova (*Sallé* [3]), Orizaba (*Botteri* [7]), Jalapa (*de Oca* [4]), Yetla (*Boucard* [5]), Oaxaca (*Fenochio* [7]), Tapana (*Sumichrast* [13]), Northern Yucatan (*Gaumer* [21]); Guatemala (*Velasquez* [23], *Constancia* [18]), Dueñas [8], Retalhuleu, Huamuchal (*O. S.*), San Gerónimo (*R. Owen* [9]), Choctum (*O. S. & F. D. G.* [7]); Nicaragua [11]; Costa Rica [15], San José (*v. Frantzius* [10 12 16]), La Palma (*Nutting* [20]), Orosi (*Kramer* [7]); Panama, Calobre, Chitra (*Arcé* [17]), Panama (*Bell* [11]).

Molothrus æneus is a very common species throughout our region from the valley of the Rio Grande southwards to the State of Panama. Such is our experience of it in Guatemala, and such is the testimony of most travellers in the country. It crosses the Rio Grande to the Texan side, where it was observed by Mr. Merrill chiefly at Hidalgo on the Rio Grande and lower down the river. He speaks of the bird as common throughout the year, a few individuals migrating southwards in the winter; he also fully describes their breeding-habits, which are similar to those of the allied species, the female selecting the nests of *Cardinalis*, *Milvulus*, *Icterus bullocki*, and *Icterus spurius* in which to lay its eggs. The male during courtship has many curious habits, the most noticeable of which is that of puffing out the feathers on the sides of the neck, which are long, in the form of a ruff. In Mexico, Grayson observed this species near Mazatlan, and watched a female make an unsuccessful attempt to appropriate a nest of *Pitangus derbianus* in which to lay her egg, and subsequently to examine one of *Icterus pustulatus* for the same purpose.

In the State of Vera Cruz, Sumichrast states that it is very common in the hot and temperate lands up to an elevation of about 4600 feet [15]. In Guatemala, as already stated, it is very common from the sea-level to a height of 5000 feet. On the plain of Salama, in the neighbourhood of San Gerónimo, Mr. Robert Owen took several eggs he believed to be of this species; these were found in the nests of two species of *Icterus* and of *Mimus gilvus* and *Pitangus derbianus* [9].

The usual resorts of *M. æneus* are open grassy plains, where a number of individuals associate in flocks and feed amongst cattle, on the backs of which they may often be observed. The eggs differ widely from those of *M. pecoris*, being of a pale greenish-white colour without spots or markings. The iris of *M. æneus*, in life, is red.

AGELÆUS.

Agelaius, Vieillot, Anal. p. 33 (1816).
Agelæus, Scl. Cat. B. Brit. Mus. xi. p. 339.

Only two of the fourteen species now included in *Agelæus* occur within our region, and these both belong to the section having the bend of the wing brightly coloured, which, with the exception of those having this portion of the wing yellow, and which are really aberrant, all belong to the continent of America north of Panama or to the island of Cuba.

A. phœniceus and *A. gubernator* are both well-known North-American birds; the former reaches to Costa Rica in its southern range, the latter does not pass beyond the limits of Mexico. The culmen of the bill of *A. phœniceus* is nearly straight, the mesorhinium being slightly flattened; the nostril is at the extremity of the nasal fossa, and is slightly overhung along the upper edge by a flat membrane; the tomia of the maxilla is slightly angulated; the tarsi are moderately long; the wing is rather short and rounded, the second, third, and fourth quills are equal and longest, and the fifth slightly exceeds the first; the tail is rounded, the rectrices are rounded and not acute at their ends.

1. Agelæus phœniceus.

Oriolus phœniceus, Linn. S. N. i. p. 161 [1].
Agelaus phœniceus, Sw. Phil. Mag. new ser. i. p. 436 [2].
Agelæus phœniceus, Scl. P. Z. S. 1857, p. 205 [3]; 1859, p. 381 [4]; Ibis, 1884, p. 10 [5]; Cat. B. Brit. Mus. xi. p. 340 [6]; Baird, Mex. Bound. Surv. ii. Zool., Birds, p. 18 [7]; Scl. & Salv. Ibis, 1859, p. 19 [8]; Moore, P. Z. S. 1859, p. 58 [9]; Cass. Pr. Ac. Phil. 1866, p. 10 [10]; Lawr. Ann. Lyc. N. Y. ix. p. 104 [11]; Mem. Bost. Soc. N. H. ii. p. 281 [12]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [13]; Frantz. J. f. Orn. 1869, p. 303 [14]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 159 [15]; Coues, B. N. W. p. 186 [16]; Salv. Cat. Strickl. Coll. p. 265 [17]; Nutting, Pr. U.S. Nat. Mus. v. p. 392 [18]; Boucard, P. Z. S. 1883, p. 446 [19]; Perez, Pr. U.S. Nat. Mus. 1886, p. 151 [20].
Psarocolius phœniceus, Wagl. Isis, 1831, p. 527 [21].

Sericeo-niger; alarum tectricibus minoribus coccineis, mediis ochraceis; rostro nigro, pedibus obscure corylinis. Long. tota 9·0, alæ 5·0, caudæ 3·7, rostri a rictu 0·95, tarsi 1·3.

♀ nigricans, albido et brunneo striata, superciliis albidis; subtus albida nigro guttata, capitis lateribus et gutture toto rubido dilute indutis, alarum rectricibus minoribus saturate rufo lavatis. Long. tota 7·3, alæ 3·9, caudæ 3·0, rostri a rictu 0·8, tarsi 1·05. (Descr. maris et feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America generally, from the Great Slave Lake southwards.—Mexico [20], Nuevo Leon (*Couch* [7]), Saltillo and Espia (*Kennerly* [7]), Mazatlan (*Grayson* [12]), Real del Monte and sides of the Cordillera (*Bullock* [2]), Tlacotalpam (*Sallé* [3]), Orizaba (*Sumichrast* [13]), Chietla (*Perez* [20]), Oaxaca (*Boucard* [4]), Northern Yucatan (*Gaumer* [19]), Cozumel I. (*Gaumer*); British Honduras, Belize (*Leyland* [9], *Blanca-*

neaux [6]); Guatemala, Peten (*Leyland* [9], *O. S.* [6]), Dueñas [8], Coban (*O. S.*); Costa Rica (*v. Frantzius* [14]), La Palma (*Nutting* [18]), Bebedero, Nicoya (*Arcé* [6 11]).

This well-known North-American species appears to be almost equally familiar throughout Mexico, wherever marshy spots are found suitable to its habits; it is more or less abundant in Northern Mexico in the State of Durango generally, and in the lower portion of the Bolson de Mapimi; and its occurrence is mentioned in many parts of Southern Mexico as well as in Yucatan. In Guatemala we observed it about the reed-banks skirting the lake of Dueñas, the bird being resident throughout the year; we also found it in similar situations on the banks of the lake of Peten. In North America *A. phœniceus* has a bad reputation for the depredation it makes on the grain crops; but in Guatemala we are not aware that it ever flies far from the marshes and adjoining meadows. The nest is woven in the reeds, and is constructed outwardly of rushes and flags. The eggs are of a light bluish ground, and are marbled and blotched with several shades of dark purple, chiefly at their larger end.

2. Agelæus gubernator.

Psarocolius gubernator, Wagl. Isis, 1832, p. 281 [1].

Agelaius gubernator, Bp. P. Z. S. 1837, p. 110 [2]; Scl. P. Z. S. 1857, p. 213 [3]; 1859, p. 365 [4]; 1864, p. 175 [5]; Ibis, 1884, p. 10 [6]; Cat. B. Brit. Mus. xi. p. 341 [7]; Lawr. Mem. Bost. Soc. N. H. ii. p. 281 [8]; Perez, Pr. U.S. Nat. Mus. 1886, p. 152 [9].

Agelaius phœniceus, var. *gubernator*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 163 [10].

A. phœnicio persimilis, sed tectricibus alarum mediis sicut minoribus omnino coccineis distinguendus.

♀ (aut ♂ juv.) quam femina *A. phœnicei* multo obscurior, corpore supra fere unicolore, abdomine quoque vix albido striato. (Descr. exempl. ex Jalapa, Mexico. ♂ mus. nostr.; ♀ aut ♂ juv. Mus. Brit.)

Hab. North America, Pacific province.—Mexico [1 2], Mazatlan and Tepic (*Grayson* [8]), Valley of Mexico (*White* [5]), Orizaba (*Botteri* [3]), Jalapa (*de Oca* [4]), Laguna del Rosario, Nativitas (*Perez* [9]).

This is a western form of *A. phœniceus*, being found throughout the States bordering on the Pacific Ocean from the Columbia river southwards. In Mexico, Grayson found it abundantly in the neighbourhood of Tepic; it also occurs in similar localities near Mazatlan, being resident in both places. The southern limit of its range appears to be the neighbourhood of Orizaba and Jalapa; we have no trace of it from any portion of Guatemala. Its nesting-habits are described by Brewer, and appear to be similar to those of *A. phœniceus*; the eggs too are also similar, but somewhat paler and less heavily marked. The distinctness of this bird from *A. phœniceus* has been much questioned of late years by writers on North-American birds, but the most recent lists treat it as a distinct species, and this we believe to be the correct view. The difference between the two is undoubtedly slight; but though their ranges overlap in several points, no intermixture that we know of takes place.

XANTHOCEPHALUS.

Xanthocephalus, Bonaparte, Consp. Av. i. p. 431 (1850); Scl. Cat. B. Brit. Mus. xi. p. 349.

The single species included in this genus is a rather peculiar form, both as to its structure and coloration. Its longer, stronger tarsi and distinct style of plumage separate it from *Agelæus*, the former feature being doubtless due to its terrestrial habits in contradistinction to the more arboreal ones of *Agelæus*.

The bill is formed much as in *Agelæus*, but the nasal operculum is more strongly developed and has the lower edge more thickened. The wing is long, the first quill the longest, the second, third, and fourth nearly as long though gradually shorter; the tail is long and but slightly rounded.

1. Xanthocephalus longipes.

Icterus icterocephalus, Bp. Am. Orn. i. p. 27, t. 3. f. 1, 2 [1] (nec *Oriolus icterocephalus*, Linn.).

Xanthocephalus icterocephalus, Baird, B. N. Am. p. 531 [2]; Baird, Mex. Bound. Surv. ii., Zool. p. 18 [3]; Scl. P. Z. S. 1864, p. 175 [4]; Lawr. Mem. Bost. Soc. N. H. ii. p. 281 [5]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 167 [6]; Coues, B. N. W. p. 188 [7]; Gundl. Orn. Cub. p. 100 [8].

Icterus xanthocephalus, Bp. Journ. Ac. Phil. v. p. 223 [9].

Agelaius xanthocephalus, Cass. Pr. Ac. Phil. 1866, p. 11 [10].

Xanthocephalus xanthocephalus, Check-List N. Am. B. p. 249 [11]; Perez, Pr. U. S. Nat. Mus. 1886, p. 152 [12].

Agelaus longipes, Sw. Phil. Mag. new ser. i. p. 436 [13].

Xanthocephalus longipes, Scl. Ibis, 1884, p. 14 [14]; Cat. B. Brit. Mus. xi. p. 350 [15].

Niger; capite toto cum pectore aurantiis, regione oculari et mento nigris, pileo postico et nucha nigro transvittatis; alis nigris, tectricibus alarum majoribus albis, alula spuria quoque pro parte alba; rostro et pedibus nigris. Long. tota 11·5, alæ 5·5, caudæ 4·0, rostri a rictu 1·0, tarsi 1·4. (Descr. maris ex Presidio prope Mazatlan, Mexico. Mus. nostr.)

♀ fuliginosa, capite summo et nucha dorso concoloribus, superciliis et gutture flavis, pectore imo albo guttato. Long. tota 11·0, alæ 5·2, caudæ 3·7, rostri a rictu 0·85, tarsi 1·4. (Descr. feminæ ex urbe Mexico. Mus. nostr.)

Hab. Western North America, from Wisconsin, Illinois, and Texas to the Pacific.—Mexico, Nuevo Leon (*Couch* [3]), Mazatlan (*Grayson* [5]), Presidio (*Forrer* [14]), tableland (*Bullock* [12]), valley of Mexico (*White* [4], *le Strange* [14]), Chietla, Huehuetlan, San Martin Texmelucan, Laguna del Rosario (*Perez* [12]).—Cuba [8].

Xanthocephalus longipes is a bird of the open or prairie country, resorting to marshy tracts in large numbers to roost and build their nests. In Northern Mexico the naturalists of the Boundary Survey observed large flocks in the State of Nuevo Leon, a roosting-place being on an island in a lagoon near Fort Brown, to which birds assembled from all quarters between sunset and dark, when for an hour a constant chattering was kept up; a similar roosting-place was on an island near the mouth of the Rio Grande. It has also been noticed in the interior of Mexico near the capital and other places on the plateau. It has been recorded, too, as occurring in the neighbourhood of Mazatlan,

but from nowhere on the eastern seaboard of Southern Mexico. In Cuba it has as yet only been noticed in the market of Havana, where dead specimens have been bought.

X. longipes builds its nest in marshy places, attaching it to the upright stalks of the reeds, and making it of flexible grasses, the whole nest being of a lighter structure than those of other *Agelæi*; the eggs are of a pale greenish-white colour, profusely spotted with several shades of purple-brown.

Subfam. III. *STURNELLINÆ.*

Nares plus minusve membrano obtectæ; mesorhinium altum, haud dilatatum, complanatum; culmen fere rectus; alæ secundariis mediis elongatis.

STURNELLA.

Sturnella, Vieillot, Anal. p. 34 (1816); Coues, Key N. Am. B. ed. 2, p. 405; Scl. Cat. B. Brit. Mus. xi. p. 358.

Mr. Sclater separates the South-American *Sturnellinæ* in which the culmen is slightly rounded anteriorly and the prevailing colour red from *Sturnella magna* under Bonaparte's generic name *Trupialis*, leaving *S. magna* the sole representative of *Sturnella*. Its mottled upper plumage, yellow under surface, and conspicuous black pectoral band render it a very distinct bird. The culmen is nearly straight, in some specimens even concave where it is flattened over the nostrils, towards the apex it is slightly depressed; there is a distinct tumid operculum over the nostrils, which are situated considerably in advance of the angle of the tomia; the feet are strong, the hind toe and claw being strongly developed; the wings are short and much rounded, the first, second, third, and fourth quills nearly equal and longest; the median secondaries are much elongated, and reach to the tip of the fifth quill when the wing is closed; the tail-feathers are rather narrow and acute at their tips.

1. Sturnella magna.

Alauda magna, Linn. S. N. i. p. 289 [1].

Sturnella magna, Sw. Phil. Mag. new ser. i. p. 436 [2]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 174 [3]; Coues, B. N. W. p. 190 [4]; Scl. Cat. B. Brit. Mus. xi. p. 358 [5].

Sturnus ludovicianus, Linn. Syst. Nat. i. p. 290 [6]; Licht. Preis-Verz. Mex. Vög. p. 1 [7].

Sturnella ludoviciana, Scl. P. Z. S. 1856, p. 142 [8]; 1858, p. 358 [9]; Cab. J. f. Orn. 1861, p. 10 [10]; Lawr. Ann. Lyc. N. Y. ix. p. 104 [11]; Cass. Pr. Ac. Phil. 1866, p. 23 [12]; Frantz. J. f. Orn. 1869, p. 303 [13]; Salv. P. Z. S. 1870, p. 191 [14]; Cat. Strickl. Coll. p. 268 [15]; Ibis, 1885, p. 219 [16]; Wyatt, Ibis, 1871, p. 330 [17]; Salv. & Godm. Ibis, 1879, p. 201 [18]; Boucard, P. Z. S. 1883, p. 446 [19].

Sturnus collaris, Wagl. Syst. Av. fol. 14, p. 6 [20]; Isis, 1831, p. 527 [21].

Sturnus hippocrepis, Wagl. Isis, 1832, p. 281 [22].

Sturnella hippocrepis, Bp. P. Z. S. 1837, p. 110 [23]; Cass. Pr. Ac. Phil. 1848, p. 90 [24]; Scl. P. Z. S. 1856, p. 301 [25]; 1859, pp. 365 [26], 381 [27]; Scl. & Salv. Ibis, 1859, p. 19 [28]; 1860, p. 34 [29]; Moore, P. Z. S. 1859, p. 58 [30]; Gundl. Orn. Cub. p. 100 [31].

Sturnella neglecta, Aud. B. N. Am. vii. p. 339, t. 489 [32]; Baird, Mex. Bound. Surv. ii., Zool. Birds, p. 19 [33].

Sturnella magna, var. *neglecta*, Lawr. Mem. Bost. Soc. N. H. ii. p. 281 [34].

Sturnella mexicana, Scl. Ibis, 1861, p. 179 [35]; P. Z. S. 1864, p. 175 [36]; Cass. Pr. Ac. Phil. 1866, p. 24 [37]; Lawr. Ann. Lyc. N. Y. viii. p. 176 [38].

Sturnella magna, var. *mexicana*, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 24 [39].

Sturnella magna mexicana, Perez, Pr. U. S. Nat. Mus. 1886, p. 152 [40].

Sturnella —— ?, Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [41].

Nigra; fuscescente-cervina, variegata et transfasciolata; superciliis posticis et linea verticali pure cervinis, superciliis anticis et corpore medio subtus flavis; genis griseo-albidis, linea postoculari et torque pectorali nigris; hypochondriis et crisso pallide cervinis nigro guttatis; cauda medialiter nigra, rectricibus quatuor intermediis extrorsum grisescentibus, hoc colore introrsum profunde serrato, rectricibus utrinque tribus externis fere albis; rostro corneo, pedibus corylinis. Long. tota 9, alæ 4·5, caudæ 3, rostri a rictu 1·2, tarsi 1·6. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

♂ feminæ similis.

Hab. North America, from Southern Canada southwards. — Mexico [21 23] (*Sallé* [25], *Pease* [24], *Deppe* [7]), Coahuila, Espia (*Kennerly* [33]), Mazatlan (*Grayson* [34]), Ciudad in Durango (*Forrer* [5]), Real del Monte (*Bullock* [2]), Valley of Mexico (*White* [36]), Llano de Chapulco, Chietla (*Perez* [40]), State of Vera Cruz (*Sumichrast* [41]), Jalapa (*de Oca* [26]), Oaxaca (*Boucard* [27]), Barrio, Santa Efigenia (*Sumichrast* [39]); Rio Lagartos (*Gaumer* [19]); British Honduras, Belize (*Leyland* [30]); Guatemala (*Constancia* [14]), pine-ridges of Poctun (*O. S.* [5]), Dueñas (*O. S.* [28 29]); Honduras, Comayagua (*Taylor* [9]); Costa Rica (*v. Frantzius* [10 13]), San José (*Carmiol* [11]), Cartago (*Arcé* [5], *Rogers* [5]); Panama, David (*Hicks* [38]), Volcan de Chiriqui (*Bridges* [8]), Volcan de Chiriqui, Castillo, Calovevora (*Arcé* [14]).—South America, Colombia [18], Venezuela [5], Guiana [15]; Cuba [22 31].

Few birds have been subjected to more varied treatment as to its name than this species. At one time Mr. Sclater considered it to be divisible into five separate forms, or local races, namely *Sturnella ludoviciana* of the Eastern States, extending westward to the high central plains, *S. neglecta* of the Western States, *S. mexicana* of Mexico and Central America, *S. hippocrepis* of Cuba, and *S. meridionalis* of Colombia, Venezuela, and Guiana; this was in 1861 [35]. In 1884 he treated all these birds with trinomials after the method of American authors; and again in 1886 [5] he placed them all under *Sturnella magna*, using the other names as indicating subspecies, and in his remarks he says that so much individual variation occurs that it would be very difficult, if not impossible, in some cases, to refer specimens to their correct subspecies without previous knowledge of their locality. In this we quite agree, but as geographical considerations alone cannot be used as a specific character we do not see our way to recognize any division. The differences after all are very trivial, and consist to a great extent in differences of size, a slight difference in the extent of the yellow on the throat, and differences in the width of the black pectoral band; all of these are subject to considerable variation, and the increase of material for comparison can hardly fail to

obliterate all grounds for separation. As regards its distribution, *S. magna* probably occurs in suitable places over the greater part of North, Central, and Northern South America, and probably few open grassy meadows and savannas are without its presence; as these are scattered at short intervals throughout the whole of the wide area indicated above, no great gaps occur in its range. As our list of localities shows, in Mexico and Central America *S. magna* must be a very common species: we met with it ourselves on the plains near Dueñas, where some pairs certainly remain to breed; this was at an elevation of nearly 5000 feet. It also occurs in the savannas of the department of Peten, which are less than 1000 feet above the sea. In North America it is partially migratory, at least in some portions of the country; in Guatemala we observed it to be more abundant in the winter months, but this may be from the habit the bird has of collecting in small flocks during that season. The nest of this species is always placed on the ground, and usually sheltered in a thick tuft of grass, to which a covered passage of withered grass is built. The eggs are white, freckled and dotted with irregular dark spots of reddish brown, which are either generally distributed over the whole surface or collected about the larger end.

LEISTES.

Leistes, Vigors, Zool. Journ. ii. p. 191 (1826); Scl. Cat. B. Brit. Mus. xi. p. 348.

Leistes is a southern genus containing only two closely allied species, one of which just enters our fauna in the State of Panama, the genus itself being represented over the greater part of South America, as far south as the Argentine Republic. The bill of *L. guianensis* has the mesorhinium slightly elevated and just perceptibly flattened, the nostril is at the lower extremity of the nasal fossa, and above it is a distinct tumid membranous operculum, much as in the genus *Sturnella*, with which the general style of the plumage shows some points of analogy; the bill, however, is comparatively much shorter and stouter, the tarsi weaker, and the middle secondaries less developed than in that genus. The wings are short and rounded, the second, third, and fourth are the longest quills, the first slightly exceeds the fifth; the tail is short and the rectrices acute. The longest secondaries are considerably longer than the shortest primaries, and there is considerable diversity in the coloration of the sexes.

Mr. Sclater places *Leistes* with the Agelæinæ, but we are confident it is best associated with the Sturnellinæ.

1. Leistes guianensis.

Oriolus guianensis, Linn. Syst. Nat. i. p. 162 [1].

Leistes guianensis, Salv. P. Z. S. 1870, p. 191 [2]; Ibis, 1885, p. 218 [3]; Tacz. Orn. Pér. ii. p. 427 [4]; Scl. Ibis, 1884, p. 21 [5]; Cat. B. Brit. Mus. xi. p. 348 [6].

Tanagra militaris, Linn. Syst. Nat. i. p. 316 [7].

Leistes militaris, Cass. Proc. Ac. Phil. 1866, p. 14 [8].

Fuscescente-niger plerumque ochraceo indistincte striatus ; cauda frequenter pallide fusco transvittata, campterio alari et corpore medio subtus a mento ad medium ventrem coccineis ; rostro corneo, pedibus corylinis. Long. tota 6·5, alæ 3·6, caudæ 2·4, rostri a rictu 0·75, tarsi 1·1.

♀ supra nigricans, cervino variegata, stria verticali superciliis et corpore subtus cervinis, pectoris lateribus et hypochondriis nigro guttulatis ; campterio alari coccineo, rostro pallide corneo. Long. tota 5·4, alæ 3·2, caudæ 2·0. (Descr. maris et feminæ ex Mina Chorcha, Panama. Mus. nostr.)

Hab. Panama, Mina de Chorcha (*Arcé* [2]), Lion Hill (*M'Leannan* [6]).—South America from Colombia [6] to Ecuador [6], Amazons Valley [6], and Guiana [1 3].

A well-known species of the northern portion of South America, ranging across the continent from the mouth of the Amazon to Ecuador and Colombia ; it just enters our region in the State of Panama, whence we have specimens both from the line of the railway and from the neighbourhood of Chiriqui. Nothing has been recorded of its habits.

Subfam. IV. *ICTERINÆ.*

Nares plus minusve membrano obtectæ ; mesorhinium altum, haud dilatatum, rotundatum ; tarsi breves, cauda rotundata.

ICTERUS.

Icterus, Brisson, Orn. ii. p. 85 (1760) ; Scl. Cat. B. Brit. Mus. xi. p. 362.

It is now, we believe, generally admitted that the genus *Icterus* cannot be satisfactorily divided, though several attempts have been made to do so. Cassin, who carried this subdivision to the greatest extent, split up *Icterus* into three genera, and each of these into a number of sections or subgenera ; but this treatment of the genus has not met with much favour. Mr. Sclater, in the 'Catalogue of Birds in the British Museum,' vol. xi., placed all these names as synonyms of *Icterus*, and adopted the three sections of it tentatively proposed by Messrs. Baird, Brewer, and Ridgway in the 'History of North-American Birds.' The definitions of these divisions are hardly satisfactory, for it will be seen that the first (A) and the third (C) only differ by one having the culmen and gonys "straight" and the other "nearly straight," and this character is hardly borne out by an examination of specimens.

So intimately connected are the extreme forms of *Icterus* that we do not see our way to attempt grouping them by any but colour-characteristics, and such as are shown by the difference or similarity of the sexes. These are mere guides to the determination of the species, and only serve to indicate the relationship of the species grouped together, rather than that of the groups themselves.

The species of *Icterus* are for the most part very well defined, if we make some allowance for differences of size and intensity of colour.

Of the thirty-eight species included in Mr. Sclater's Catalogue, to which we now add one, no less than nineteen belong to our region *. The rest are distributed throughout

* The habitat, Panama, of *I. dubusi* is not sufficiently authentic for us to include the species in this work.

Tropical South America and the West-Indian Islands; but no one district possesses nearly so many species as are to be found in Southern Mexico or Guatemala. Some of our species, such as *I. baltimore* and *I. spurius*, are migrants from the north which spend the winter months in Central America.

The bill of *Icterus* varies a good deal in shape: in *I. baltimore* and *I. sclateri* the culmen is nearly straight and but slightly depressed towards the tip; in *I. cucullatus* and *I. parisorum* and others it is gradually curved from the base; but in this character there seems to be almost every gradation between the extremes. The gonys follows the culmen, and is nearly straight or curved according as the bill is stout or slender; the tarsi are short, in conformity with the arboreal habits of the birds. The wings in *I. baltimore* and the allied species are rather long, the first quill being equal to the fourth, and slightly shorter than the second, which is the longest in the wing; in *I. spurius* the first, second, third, and fourth are subequal: in the more sedentary species, such as *I. cucullatus*, *I. sclateri*, &c., the wing is more rounded, the second and third quills considerably exceed the first; the tail in the latter birds is more rounded than in *I. baltimore* and its allies, though the differences are not great. All the species are skilful nest-builders, as will be seen in our account of several of them given below; all, too, are good songsters, and if their notes are not very varied, their quality is excellent. They inhabit wooded districts, not so much the virgin forests as the less heavily timbered country, some frequenting the plains where *Cacti* and *Mimosæ* are prevalent, others preferring the oak-forests at high elevations.

Glossy black enters more or less into the colour of the plumage of the adult males, associated more or less with yellow or orange, or in some cases chestnut.

A. *Caput summum nigrum.*

a. *Sexus dissimiles.*

a'. *Rectrices externæ fere omnino flavæ.*

1. Icterus baltimore.

Oriolus baltimore, Linn. S. N. i. p. 162[1].

Xanthornus baltimore, Sw. Phil. Mag. new ser. i. p. 436[2].

Icterus baltimore, Licht. Preis-Verz. mex. Vög. p. 1[3]; Bp. P. Z. S. 1837, p. 116[4]; Scl. P. Z. S. 1864, p. 175[5]; Ibis, 1883, p. 354[6]; Cat. B. Brit. Mus. xi. p. 364[7]; Lawr. Ann. Lyc. N. Y. vii. p. 331[8]; viii. p. 176[9]; Scl. & Salv. P. Z. S. 1864, p. 353[10]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553[11]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 195[12]; Coues, B. N. W. p. 193[13]; Gundl. Orn. Cub. p. 95[14]; Salv. & Godm. Ibis, 1880, p. 123[15]; Salv. Cat. Strickl. Coll. p. 262[16].

Yphantes baltimore, Cass. Pr. Ac. Phil. 1848, p. 90[17].

Hyphantes baltimore, Moore, P. Z. S. 1859, p. 57[18]; Cab. J. f. Orn. 1861, p. 7[19]; Cass. Pr. Ac. Phil. 1867, p. 62[20]; Lawr. Ann. Lyc. N. Y. ix. p. 104[21]; Frantz. J. f. Orn. 1869, p. 303[22].

Yphantes baltimorensis, Scl. P. Z. S. 1856, p. 142[23].

Hyphantes baltimorensis, Scl. P. Z. S. 1857, p. 205 [24]; 1859, p. 365 [25].

Icterus baltimorensis, Scl. & Salv. Ibis, 1859, p. 20 [26]; P. Z. S. 1867, p. 279 [27]; 1870, p. 836 [28]; Salv. P. Z. S. 1870, p. 190 [29]; Ibis, 1872, p. 317 [30].

Icterus galbula, Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 392 [31]; Check-list N. Am. B. p. 252 [32]; Perez, Pr. U. S. Nat. Mus. 1886, p. 149 [33].

Aurantiacus, capite undique cum gula et dorso superiore nigris; alis nigris, tectricum majorum apicibus et remigum marginibus externis albis, tectricibus minoribus et campterio aurantiacis; subalaribus flavis; remigum marginibus internis albis; cauda nigra, hujus basi et rectricum lateralium apicibus latis aurantiacis; rostro plumbeo, pedibus nigris. Long. tota 7·3, alæ 3·8, caudæ 2·8, rostri a rictu 0·85, tarsi 0·8. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

♀ supra griseo-fusca, capite summo et uropygio flavo tinctis; alis nigricantibus extus albo limbatis; cauda flavicante-fusca; subtus albida, pectore et crisso aurantio indutis. (Descr. feminæ ex Calobre, Panama. Mus. nostr.)

♂ *juv.* feminæ similis, sed subtus magis aurantius et gula plus minusve nigro variegata.

Hab. North America [1], from the Atlantic coast to the high central plains.—Mexico (*Deppe* [3], *Pease* [17]), Real del Monte, Tableland (*Bullock* [2]), Valley of Mexico (*White* [5]), Teziutlan (*Perez* [33]), State of Vera Cruz (*Sumichrast* [11]), Jalapa (*Sallé* [24], *de Oca* [25], *Perez* [33]), San Andres Tuxtla (*Sallé* [24]); British Honduras (*Blancaneaux*), Cays between Belize and Omoa (*Leyland* [18]); Guatemala (*Velasquez* [4], *Constancia* [16]), Vera Paz (*Skinner* [26]), Choctum, Cahabon, Coban, Volcan de Fuego, Escuintla, San Pedro Martyr (*O. S. & F. D. G.*[7]); Honduras, San Pedro (*G. M. Whitely* [28]); Nicaragua, Blewfields River (*Wickham* [27]), Chontales (*Belt* [30]), Omotepe I. (*Nutting* [31]); Costa Rica (*v. Frantzius* [22]), Bebedero, Nicoya (*Arcé* [7]), San José (*Ellendorf* [19], *Carmiol* [21]), Irazu (*Rogers*); Panama, Chiriqui (*Bridges* [23]), David (*Hicks* [9]), Bugaba (*Arcé* [7]), Calobre (*Arcé* [29]), Lion Hill (*McLeannan* [8 9 10]), Paraiso Station (*Hughes* [7]).—Colombia [15]; Cuba [14].

Throughout Mexico and Central America the Baltimore Oriole is a migratory species, though in the Rio-Grande valley, and probably some distance south of it, some birds remain to breed; in Southern Mexico and in the Tablelands it has frequently been noticed, but it does not extend to any portion of the Pacific coast, at least so far as Mexico is concerned. In Guatemala, however, we observed it on the low-lying lands bordering on the Pacific, but it was much less common than in Vera Paz, especially in the vicinity of Coban, where the native hunters obtained us many specimens in the winter season in the neighbourhood of the town. Its range southward hardly extends beyond the Isthmus of Panama; but we have specimens from the Sierra Nevada of Santa Martha, which is, so far as we know, its extreme limit. In Cuba Dr. Gundlach observed specimens in the neighbourhood of Havana and Cardenas, but none of them in adult plumage. In North America its range extends as far north as the fifty-fifth parallel of latitude; and it is common throughout the eastern States as far as the Mississippi river, and more sparingly to the Rocky Mountains; it is rare, too, in Florida.

The nest is a pendulous, nearly cylindrical, pouch, hung from the extremity of some branch; it is constructed of flexible plants, which are woven together so as to form a

fabric of great strength; sometimes the nest is made of *Tillandsia*. The eggs are white, variously marked and marbled with spots and blotches, and with wavy lines of purplish brown.

2. Icterus bullocki.

Xanthornus bullockii, Sw. Phil. Mag. new ser. i. p. 436[1].

Icterus bullocki, Scl. & Salv. P. Z. S. 1869, p. 362[2]; Ex. Orn. p. 188[3]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 199[4]; Coues, B. N. W. p. 195[5]; Scl. Ibis, 1883, p. 354[6]; Cat. B. Brit. Mus. xi. p. 365[7]; Perez, Pr. U. S. Nat. Mus. 1886, p. 150[8].

Hyphantes bullocki, Cass. Pr. Ac. Phil. 1867, p. 62[9].

Yphantes bullockii, Dugès, La Nat. i. p. 139[10].

Aurantiaco-flavus, pileo, dorso superiore, loris et linea per oculos ducta cum gula nigris; alis nigris, tectricibus minoribus et mediis et remigum marginibus externis albis, campterio alari et subalaribus flavis, remigum marginibus internis albicantibus; cauda flava, rectricibus quatuor mediis præter basin nigris, ceteris plus minusve nigro terminatis; rostro obscure plumbeo, pedibus nigris. Long. tota 6·8, alæ 3·9, caudæ 3·2, rostri a rictu 0·8, tarsi 0·9. (Descr. exempl. ex Mexico. Mus. nostr.)

♀ fusca, capite summo et cauda flavicante-olivaceis; subtus sordide alba; superciliis, pectore et crisso flavidis. (Descr. feminæ ex California. Mus. Brit.)

Hab. Western North America.—Mexico[8] (*Dugès*[9]), Tableland (*Bullock*[1]), Valley of Mexico (*le Strange*[2]), Huehuetlan (*Perez*[8]).

Though quite distinct in its markings from the Baltimore Oriole, *Icterus bullocki* seems to take the place of that species in Western America from the high central plains to the Pacific Ocean; it extends northward to British Columbia, and is found as far south as Central and Southern Mexico. It is certainly a migratory species in the northern portion of its range, and, indeed, as far south as the Mexican frontier; but we are unable to say whether it breeds in Mexico itself or only uses that country as winter-quarters. Doctor Coues saw much of this species during his visits to Arizona and New Mexico, and has given an account of its habits, with special reference to its nesting[5]. The nest he describes as a carefully woven structure, from six to nine inches long, with the hole sometimes at the top, sometimes in the side. The materials used vary considerably—sometimes of vegetable fibre, sometimes of pine-needles. The egg is rather elongated, being much pointed at the smaller end; in colour it is pale bluish white, and everywhere overrun with rather fine lines of blackish brown.

3. Icterus abeillæi.

Xanthornus abeillei, Less. Rev. Zool. 1839, p. 101[1].

Icterus abeillii, Scl. P. Z. S. 1860, p. 252[2]; 1864, p. 175[3]; Ibis, 1883, p. 355[4]; Cat. B. Brit. Mus. xi. p. 366[5]; Scl. & Salv. P. Z. S. 1869, p. 362[6]; Ex. Orn. p. 187, t. 94[7]; Dugès, La Nat. i. p. 139[8]; Salv. Cat. Strickl. Coll. p. 262[9].

Hyphantes abeillei, Cass. Pr. Ac. Phil. 1867, p. 62[10].

Icterus bullockii, var. *abeillei*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 184[11].

Psarocolius costototl, Wagl. Isis, 1829, p. 757 (?)[12].

Supra nigerrimus, alarum tectricibus mediis et remigum marginibus externis albis, linea inter nares et oculos et corpore medio subtus flavissimis, gula media et hypochondriis nigris, subalaribus flavis, remigum marginibus internis cineraceo-albis; cauda flava, rectricibus quatuor mediis fere omnino nigris et ceterarum apicibus nigro terminatis; rostro plumbeo-nigro, pedibus plumbeis. Long. tota 7·3, alæ 4·2, caudæ 3·5, rostri a rictu 0·85, tarsi 0·9. (Descr. exempl. ex Mexico. Mus. nostr.)

Hab. Mexico [1] (*de Saussure* [5], *T. Mann* [9]), Guanajuato (*Dugès* [8]), valley of Mexico (*White* [3], *le Strange* [6]), Orizaba (*Boucard* [2]).

Abundantly distinct, though evidently allied to *I. bullocki*, this species is restricted in its range to Central Mexico. It was obtained by M. Boucard in the vicinity of Orizaba [2], but Sumichrast is silent as to its occurrence in the State of Vera Cruz. We have not unfrequently met with specimens from the vicinity of the city of Mexico; and Dugès records it from Guanajuato. Of its habits nothing has been put on record. We have little doubt that Wagler's description of his *Psarocolius costototl* refers to this bird, being based upon a somewhat immature individual. Whether it is the "Costototl" of Hernandez, the *Oriolus costototl* of authors, is more than we can say. We have no female of this species accessible for description. The bird described as a female by Mr. Sclater appears to us to be a young male commencing to assume its adult dress.

b′. *Rectricum externarum dimidium basale flavum.*

4. Icterus parisorum.

Icterus parisorum, Bp. P. Z. S. 1837, p. 110 [1]; Scl. P. Z. S. 1858, p. 303 [2]; 1860, p. 251 [3]; 1864, p. 175 [4]; Ibis, 1883, p. 365 [5]; Cat. B. Brit. Mus. xi. p. 374 [6]; Baird, Mex. Bound. Surv., Zool. Birds, p. 19, t. 19. f. 1 [7]; Cass. Pr. Ac. Phil. 1867, p. 54 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [9]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 188 [10]; Scott, Auk, ii. p. 1 [11]; Perez, Pr. U. S. Nat. Mus. 1886, p. 150 [12].

Icterus melanochrysura, Less. Rev. Zool. 1839, p. 105 [13].

Icterus scottii, Couch, Pr. Ac. Phil. 1854, p. 66 [14].

Supra nigerrimus, dorso postico et tectricibus alarum minoribus flavis, tectricibus majoribus ad basin albis, his et secundariis internis albo terminatis; subtus ad medium pectus niger, abdomine et tectricibus subalaribus flavis, caudæ rectricum utrinque quatuor dimidio basali flavis, dimidio apicali et rectricibus quatuor mediis pro majore parte nigris; rostro nigro, mandibulæ basi et pedibus plumbeis. Long. tota 7·5, alæ 4·2, caudæ 3·4, rostri a rictu 1·1, tarsi 0·95. (Descr. maris ex Mexico. Mus. nostr.)

♀ olivacea supra fusco variegata, cauda olivaceo-fusca, alis albo bifasciatis; subtus flavicantior, ventre medio flavido. (Descr. exempl. ex urbe Mexico. Mus. nostr.)

Hab. North America, Texas, Arizona [11], Lower California.—Mexico [1 8 13] (*Sallé* [3]), Nuevo Leon and Coahuila (*Couch* [14]), valley of Mexico [6] (*White* [4]), San Bartolo (*Perez* [12]), temperate and alpine regions of Vera Cruz (*Sumichrast* [9]), La Parada (*Boucard* [2]).

Icterus parisorum occurs in numbers in the States joining our northern frontier—Arizona, New Mexico, and Texas, where it resides during the summer months from April to September, and where it breeds; it is also common in lower California. In winter it passes southwards as far as Central Mexico and the States of Puebla and Vera

Cruz; and Sumichrast includes it amongst the birds of the temperate and alpine regions of the latter State. It breeds, he says, in the temperate region, and is found as high as between 5000 and 6000 feet above the sea in the neighbourhood of Orizaba, and at even higher altitudes in the plateau.

Mr. Scott has recently given a good account of his observations on the species in the Santa Catalina Mountains in Arizona, where he found it breeding, and where he obtained several nests. These were usually placed in a species of Yucca (*Yucca brac-cata*), and carefully hidden under the half-dead and dry leaves that hung down close to the stem of the plant. He describes the nest as sewn to the leaves and as partly pendent. The nests are composed of fibre of the Yucca and fine grasses, and lined with finer grass and threads of cotton waste. The eggs, he says, are bluish white, with chocolate-brown and lighter lilac-brown spots, chiefly at the larger end.

c'. *Cauda nigra albo stricte terminata.*

5. **Icterus spurius.**

Oriolus spurius, Linn. S. N. i. p. 162 [1].

Icterus spurius, Bp. P. Z. S. 1837, p. 116 [2]; Scl. P. Z. S. 1859, p. 380 [3]; Cat. B. Brit. Mus. xi. p. 366 [4]; Lawr. Ann. Lyc. N. Y. vii. p. 331 [5]; viii. p. 176 [6]; Scl. & Salv. P. Z. S. 1864, p. 353 [7]; 1870, p. 837 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [9]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 190 [10]; Coues, B. N. W. p. 192 [11]; Gundl. Orn. Cub. p. 96 [12]; Salv. Cat. Strickl. Coll. p. 262 [13]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 392 [14].

Xanthornus spurius, Cab. J. f. Orn. 1861, p. 8 [15]; Lawr. Ann. Lyc. N. Y. ix. p. 104 [16]; Frantz. J. f. Orn. 1869, p. 303 [17].

Pendulinus spurius, Cass. Pr. Ac. Phil. 1867, p. 61 [18].

Xanthornus affinis, Lawr. Ann. Lyc. N. Y. v. p. 113 [19]; Cass. Pr. Ac. Phil. 1860, p. 140 [20].

Icterus affinis, Scl. & Salv. Ibis, 1859, p. 20 [21]; Ibis, 1860, p. 34 [22]; Scl. P. Z. S. 1864, p. 175 [23].

Pendulinus affinis, Cass. Pr. Ac. Phil. 1867, p. 61 [24].

Bananivorus affinis, Scl. P. Z. S. 1856, p. 301 [25]; 1859, p. 365 [26].

Icterus spurius, var. *affinis*, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 24 [27]; Mem. Bost. Soc. N. H. ii. p. 279 [28].

Oriolus varius, Gm. Syst. Nat. i. p. 390 [29].

Icterus varius, juv., Licht. Preis-Verz. mex. Vög. p. 1; J. f. Orn. 1863, p. 56 [30].

Supra niger, tectricibus alarum minoribus et dorso postico castaneis; alis nigris, remigibus et tectricibus mediis anguste sordide albo limbatis; subtus castaneus, gutture toto nigro; subalaribus ventre concoloribus; cauda nigra, rectricum apicibus anguste albido terminatis; rostro et pedibus nigris. Long. tota 6·3, alæ 3·0, caudæ 2·75, rostri a rictu 0·7, tarsi 0·8. (Descr. maris ex Rio de la Pasion, Guatemala. Mus. nostr.)

♀ supra olivacea-fusca, superciliis indistinctis, corpore subtus flavicantibus, alis extus sordide albo limbatis, (Descr. feminæ ex Coban, Guatemala. Mus. nostr.)

♂ *juv.* feminæ similis, sed gula nigra.

Hab. North America, from the Atlantic to the high central plains.—Mexico [24] (*Deppe* [30], *Galeotti* [13]), Presidio (*Forrer* [4]), Mazatlan (*Grayson* [28]), plains of Colima (*Xantus* [28]), valley of Mexico (*White* [23]), State of Vera Cruz (*Sumichrast* [9]), Cordova (*Sallé* [25]),

Jalapa (*de Oca* [26]), Playa Vicente (*Boucard* [3]), Chihuitan, Santa Efigenia, Tehuantepec city (*Sumichrast* [27]), Jolbox I., Cozumel I. (*G. F. Gaumer* [4]); BRITISH HONDURAS, Belize (*Blancaneaux*); GUATEMALA (*Velasquez* [2], *Constancia* [13], *Skinner* [21]), Dueñas [22], Retalhuleu, Coban [22], and Escuintla, and throughout the Costa Grande in January and February, Cahabon [4], Choctum (*O. S. & F. D. G.*); HONDURAS, Ruatan I. (*G. F. Gaumer*), San Pedro (*G. M. Whitely* [8]); NICARAGUA, Omotepe I. (*Nutting* [14]); COSTA RICA (*v. Frantzius* [15 17]), San José (*v. Frantzius* [16], *Carmiol* [16]), Irazu (*Rogers* [4]); PANAMA, David (*Hicks* [6]), Lion-Hill Station (*M'Leannan* [5 6 7]), Line of Railway (*Arcé* [4]).—COLOMBIA, Atrato [20]; CUBA [12].

As will be seen from the above list of localities, *Icterus spurius* is a very widely distributed and common species throughout our region, where it lives during the winter season. It breeds on the Texan side of the Rio Grande valley; but whether it does so in any portion of Mexico remains yet to be proved. It hardly passes beyond our limits in its southern migration. We are not aware that it ever occurs in the trade collections made in the interior of Colombia, nor did Salmon meet with it in the Cauca valley; but a single male was obtained during Lieut. Michler's exploring expedition on the banks of the Atrato, and Dr. Cabanis records a young bird from Cartagena [15]. It also occurs in Cuba, but apparently in no great numbers, though it is abundant on the coast of Yucatan and the adjoining islands. In Guatemala we not unfrequently met with young males moulting into their adult plumage; but it is not clear to us by what sequence of change of feathers this process is carried out. We have young males in the female plumage, but with black throats and a few of the chestnut feathers just showing, which were shot in November and December; others, again, killed in August and the beginning of September, have nearly assumed their fully adult plumage, though the black feathers of the upper surface are broadly edged with pale brown. From the state of the plumage of these birds it would seem that they were in very rapid moult when they were killed.

Birds of this species were observed at Dueñas to be common in July, and it is therefore more than probable that they were birds that bred in the neighbourhood and their young broods; but we never observed their nests. As regards the peculiarities of the moulting-periods of this species generally, it may be that birds reared in the highlands of Guatemala moult at a different season from those which migrate northwards; but this is only a suggestion, for the point requires further investigation.

The nest is usually formed of long flexible grasses, which are dexterously woven together; the depth does not exceed three inches, but this depends to some extent on the stability of the branches of the tree to which they are attached. The eggs are pale bluish white, blotched with pale purple, and splashed at the larger end with markings of dark purple-brown.

b. *Sexus similes.*

6. Icterus wagleri.

Psarocolius flavigaster, Wagl. Isis, 1829, p. 756[1] (nec Vieillot).

Icterus wagleri, Scl. P. Z. S. 1857, p. 7[2]; 1859, p. 381[3]; Ibis, 1883, p. 362[4]; Cat. B. Brit. Mus. xi. p. 372[5]; Baird, Mex. Bound. Surv. ii. Zool., Birds, p. 19, t. 19. f. 2[6]; Scl. & Salv. Ibis, 1859, p. 20[7]; Salv. Ibis, 1859, p. 468[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552[9]; Finsch, Abh. nat. Ver. zu Bremen, 1870, p. 338[10]; Lawr. Mem. Bost. Soc. N. H. ii. p. 279[11]; Salv. Cat. Strickl. Coll. p. 263[12]; Perez, Pr. U. S. Nat. Mus. 1886, p. 150[13].

Pendulinus wagleri, Cass. Pr. Ac. Phil. 1867, p. 55[14].

Icterus dominicensis, Sw. Phil. Mag. new ser. i. p. 436[15].

Nigerrimus; dorso postico tectricibus alarum minoribus subalaribus et ventre toto flavis, hoc aurantiaco tincto, crisso nigro; alis caudaque nigerrimis; rostro et pedibus nigris. Long. tota 8·4, alæ 4·0, caudæ 4·1, rostri a rictu 1·0, tarsi 0·9. (Descr. maris ex Dueñas, Guatemala. Mus. nostr.)

♀ mari similis.

Av. juv. supra olivacea, interscapulii plumis medialiter fuscis; alis et cauda fuscis, illis pallide fusco limbatis; subtus sordide flava, gula nigra. (Descr. exempl. ex Dueñas, Guatemala. Mus. nostr.)

Av. pull. subtus omnino flavicans.

Hab. Mexico[1 5], Saltillo, Coahuila (*Couch*[6 14]), Mazatlan (*Grayson*[11]), Presidio (*Forrer*[5]), Guadalajara[9 11], Tepic[11] (*Grayson*), Tableland, Temiscaltepec (*Bullock*[15]), Huehuetlan (*Perez*[13]), State of Vera Cruz, Cordova (*Sumichrast*[9]), Villa Alta (*Boucard*[3]), Oaxaca (*Boucard*[3], *Fenochio*[5]); Guatemala (*Constancia*[12]), Dueñas[7], Calderas on the Volcan de Fuego[5], San Gerónimo (*O. S.*).

Icterus wagleri ranges throughout Mexico and a large portion of Guatemala, being, according to our experience in Guatemala, an upland species frequenting the wooded mountains at elevations lying between 3000 and 6000 feet above the sea. In Mexico, Sumichrast states[9] that it belongs to the hot region of the State of Vera Cruz in the district of Cordova, its vertical range reaching to about 3300 feet; but as the bird obtained by Sallé in this locality proved to be *Icterus prosthemelas*, Sumichrast's bird may have been wrongly identified. Grayson observed it in the garden of Jauja in Tepic, where a few pairs resided[11]; he considered it a rare species in Western Mexico, but Forrer found it in the neighbourhood of Mazatlan. In the neighbourhood of Dueñas in Guatemala, *Icterus wagleri* is one of the commonest birds of the genus in the shrubby woods clothing the hill-sides and in the second-growth woods on the Volcan de Fuego; here it breeds, making a shallow nest of interwoven grasses[8].

In the 'History of North-American Birds' this species is noticed in a footnote (vol. ii. p. 188), and is there stated to be found in Costa Rica; but this extension of its range requires confirmation, as its name is absent from all the recognized lists of the birds of that country.

7. Icterus prosthemelas.

Xanthornus prosthemelas, Strickl. Contr. Orn. 1850, p. 120, t. 62[1].

Icterus prosthemelas, Scl. P. Z. S. 1856, p. 301[2]; Ibis, 1883, p. 363[3]; Cat. B. Brit. Mus. xi.

p. 373[4]; Scl. & Salv. Ibis, 1859, p. 20[5]; Scl. & Salv. P. Z. S. 1867, p. 279[6]; 1870, p. 837[7]; Moore, P. Z. S. 1859, p. 58[8]; Dugès, La Nat. i. p. 139[9]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 23[10].

Pendulinus prosthemelas, Cass. Pr. Ac. Phil. 1867, p. 56[11]; Lawr. Ann. Lyc. N. Y. ix. p. 104[12]; Frantz. J. f. Orn. 1869, p. 302[13].

Pendulinus lessoni, Bp. Consp. Av. i. p. 432[14].

Nigerrimus; dorso postico, tectricibus alarum minoribus, subalaribus et ventre cum crisso flavis; pectore nigro, ad ventrem castaneo marginato; rostro nigro, mandibula ad basin plumbea, pedibus nigris. Long. tota 7·8, alæ 3·6, caudæ 3·75, rostri a rictu 0·8, tarsi 0·9. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ mari similis.

Hab. Mexico[14], Guanajuato (*Dugès*[9]), Cordova (*Sallé*[2]), Chihuitan, Tehuantepec (*Sumichrast*[10]); British Honduras, Corosal (*Roe*[4]), Belize (*Blancaneaux*[4]); Guatemala[1] (*Skinner*[5]), Choctum[4], Coban (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely*[7]), Comayagua (*Leyland*[8]); Nicaragua, Blewfields River (*Wickham*[6]); Costa Rica (*v. Frantzius*[13]), Peje (*Carmiol*[4]), Tucurriqui (*Arcé*[12]).

This bird is closely allied to *I. wagleri*, but may be at once distinguished by the colour of the under tail-coverts, which are wholly yellow instead of being tipped with black; it is of a paler yellow beneath, and rather smaller in size. In Guatemala we only met with it in the forest-region of Vera Paz, where it is found at an elevation of 1200 feet, and of 4000 feet in the neighbourhood of Coban. We are not aware of its occurrence on the Pacific side of Guatemala, but Sumichrast records it from the Isthmus of Tehuantepec. M. Sallé also found it at Cordova on the eastern side. Dr. Dugès identifies a bird as of this species from Guanajuato, but we think it more than probable that some mistake has been made here. Passing southwards, *I. prosthemelas* has been noticed at many points of Eastern Central America as far south as Costa Rica, beyond which country it appears not to pass. We never met with the nest of this species, though we were some time in the districts frequented by it in Northern Vera Paz.

Like its congeners, it is found on the edges of the forest and in second-growth woods.

8. Icterus maculi-alatus.

Pendulinus maculi-alatus, Cassin, Pr. Ac. Phil. 1847, p. 332[1]; 1867, p. 56[2]; Journ. Ac. Phil. ser. 2, i. p. 137, t. 16. f. 1[3].

Icterus maculialatus, Scl. & Salv. Ibis, 1860, p. 398[4]; Dugès, La Nat. i. p. 139[5]; Scl. Ibis, 1883, p. 363[6]; Cat. B. Brit. Mus. xi. p. 373[7].

Nigerrimus; dorso postico, tectricibus alarum minoribus, subalaribus et abdomine cum crisso aurantio-flavis; tectricibus alarum majoribus macula apicali alba notatis; remigibus quoque externis (præter primam) medialiter albo limbatis; rostro nigro, mandibula ad basin et pedibus plumbeis. Long. tota 8·2, alæ 3·9, caudæ 3·8, rostri a rictu 0·85, tarsi 1. (Descr. maris ex Volcan de Agua. Mus. nostr.)

♂ *juv.* virescens; subtus flavicantior, gutture nigro; alis fuscis viridi-fusco limbatis. (Descr. exempl. ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Guatemala, Volcan de Fuego[4], Volcan de Agua above San Diego[7], San Pedro Martyr (*O. S.*), Escuintla[7], Aguna[7] (*Fraser*).

Dr. Dugès includes this species in his list of Guanajuato birds[5]; but it is more than probable that a wrong identification has been made, for there are no other records of its occurrence in Mexico, the bird being, so far as our knowledge goes, strictly confined to the forest-clad slopes of the mountains trending towards the Pacific coast of Guatemala. In this district most of our specimens were obtained at various points at elevations ranging between 1500 and 3500 feet above the sea, but we sometimes met with it at higher elevations in the Volcan de Fuego. Cassin states that the original specimen in the Academy of Philadelphia is labelled as coming from Coban in Vera Paz; but this locality we think more than doubtful, since Coban, being the headquarters of the bird-collectors of Vera Paz, has been thoroughly explored; and we have examined hundreds of specimens obtained in that district, but *Icterus maculi-alatus* was never amongst them. The species is very like *Icterus wagleri* and *Icterus prosthemelas*, but may at once be recognized by the less extent of the black on the throat and the conspicuous white markings on the wings.

9. **Icterus melanocephalus.**

Psarocolius melanocephalus, Wagl. Isis, 1829, p. 756[1].

Icterus melanocephalus, Hahn, in Küster, Vög. aus Asien, Lief. vi. p. 2, t. 3[2]; Cass. Pr. Ac. Phil. 1848, p. 90[3]; 1867, p. 53[4]; Scl. P. Z. S. 1856, p. 301[5]; 1858, p. 97[6]; 1859, p. 365[7]; Ibis, 1883, p. 365[8]; Cat. B. Brit. Mus. xi. p. 375[9]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553[10]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 23[11].

Icterus melanocephalus, var. *auduboni*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 186[12].

Icterus auduboni, Giraud, B. Texas, p. 1[13]; Baird, Mex. Bound. Surv. ii. Zool., Birds, p. 19[14]; Scl. P. Z. S. 1859, p. 381[15]; 1864, p. 175[16]; Ibis, 1883, p. 366[17]; Cass. Pr. Ac. Phil. 1867, p. 53[18]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553[19]; Sennett, Bull. U. S. Geol. Surv. iv. p. 26[20]; v. p. 399[21]; Perez, Pr. U. S. Nat. Mus. 1886, p. 150[22].

Icterus graduacauda, Less. Rev. Zool. 1839, p. 105[23].

Oleagineo-flavus; capite toto undique, alis et cauda nigris, tectricibus alarum minoribus, abdomine toto subtus et subalaribus flavis, gutture toto ad medium pectus nigro; rostro nigro, mandibulæ basi et pedibus plumbeis. Long. tota 7·5, alæ 3·7, caudæ 3·8, rostri a rictu 0·9, tarsi 1·1. (Descr. exempl. ex Jalapa. Mus. nostr.)

♀ mari similis, sed supra paullo olivascentior.

Hab. North America, Rio Grande valley[20 21].—Mexico[1 22 23] (*Sallé*[5]), Charco Escondido, Tamaulipas, Nuevo Leon (*Couch*[14 18]), valley of Mexico (*White*[16]), temperate region of Vera Cruz, Orizaba (*Sumichrast*[10 19]), Jalapa (*Pease*[3], *Perez*[22], *de Oca*[7]) Mirador (*Sartorius*[4]), Orizaba (*le Strange*), Juquila (*Boucard*[15]), Guichicovi (*Sumichrast*[11]).

Two forms of this bird have generally been recognized, under the names of *Icterus melanocephalus* and *Icterus auduboni*, the former being distinguished from the latter by its smaller, stouter, and more curved bill and the absence of any white on the wing. These characters, however, do not seem to be constant, and the ranges of the two forms coincide. The valley of the Rio Grande is its extreme northern limit, and here

Mr. Sennett found it in some numbers at Lomita and Hidalgo on the Texan side of the river. He also found some nests, which were composed of dry grasses woven amongst the growing twigs and leaves, and were open, rather shallow, half-pensile structures. The eggs are white, covered with fine flecks of brown, over which, chiefly at the larger end, are irregular stains and splashes of deeper brown, sometimes mixed with lilac; over these, again, are dark brown or black hieroglyphics.

It is a bird often met with in cages, as its powers of song are considerable. In Mexico it occurs in the temperate region of the State of Vera Cruz, and it is very common in the State of Orizaba, where it also builds. The southern limit of its range is the Isthmus of Tehuantepec. We have never met with it in Guatemala.

B. *Caput summum flavum aut aurantiacum.*

c. *Sexus similes; alæ nigræ haud albo limbatæ, cauda haud albo terminata.*

d'. *Cauda nigra.*

10. Icterus giraudi.

Icterus giraudi, Cassin, Pr. Ac. Phil. 1847, p. 333 [1]; 1860, p. 140 [2]; 1867, p. 52 [3]; Journ. Ac. Phil. ser. 2, i. p. 138, t. 17 [4]; Scl. P. Z. S. 1857, p. 228 [5]; Ibis, 1873, p. 373 [6]; 1883, p. 366 [7]; Cat. B. Brit. Mus. xi. p. 379 [8]; Scl. & Salv. Ibis, 1859, p. 20 [9]; P. Z. S. 1864, p. 353 [10]; 1879, p. 509 [11]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [12]; Salv. P. Z. S. 1867, p. 142 [13]; 1870, p. 190 [14]; Cat. Strickl. Coll. p. 263 [15]; Wyatt, Ibis, 1871, p. 330 [16]; Zeledon, Cat. Av. de Costa Rica, p. 9 [17]; Boucard, P. Z. S. 1883, p. 445 [18].

Icterus melanopterus, Hartl. Rev. Zool. 1849, p. 275 [19], Moore, P. Z. S. 1859, p. 58 [20].

Xanthornus chrysater, Bp. Consp. Av. i. p. 434 [21].

Flavus, aurantio tinctus; fronte capitis lateribus ab oculis, gula, alis et cauda nigris; rostro et pedibus plumbeo-nigris. Long. tota 8·2, alæ 3·8, caudæ 3·8, rostri a rictu 1·0, tarsi 1·0. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

Hab. Mexico [21], Santecomapam (*Boucard* [5]), Yucatan (*Gaumer* [18]); Guatemala (*Skinner* [9], *Constancia* [15]), Volcan de Fuego [7], Dueñas [7], San Antonio Nacoil, Motagua valley, Tactic [7], Coban (*O.S. & F.D.G.*); Honduras, Omoa (*Leyland* [20]), Ruatan I. (*Gaumer*); Nicaragua, Chontales (*Belt* [6]); Costa Rica (*Zeledon* [17]); Panama, Chitra [14], Boquete de Chitra, Castillo [14], Santa Fé [13] (*Arcé*), Lion-Hill Station (*M'Leannan* [10 12]), Chepo (*Arcé* [7]), Truando, Nercua (*Wood* [2]).—Colombia [1 11 16]; Venezuela [7 19].

This *Icterus* does not appear to be a common bird in Southern Mexico, and is not included in Sumichrast's list of the birds of the State of Vera Cruz; but Boucard found it at Santecomapam [5], and we believe that the bird described from Mexico by Bonaparte as *Xanthornus chrysater* refers to the same species; but in Yucatan Mr. Gaumer says it is common, and it certainly is so over a large portion of Guatemala, where it occurs at various elevations from the sea-level to an altitude of 6000 feet and more in the Volcan de Fuego; thence we trace it southwards to Colombia and

Venezuela. Mr. Wyatt considered it a bird of the temperate region of the former country, its range in altitude extending to about 7000 feet, and Salmon met with it at Medellin and other places in the Cauca valley at an elevation of about 6000 feet. The last-named collector obtained its eggs, which are pale grey blotched and streaked with dark brown and grey.

A good deal of variation is shown in specimens of this species, both as regards size and the tint of the yellow portion of the plumage. The bird we have described from the Volcan de Fuego is rather dark; we have a much paler example from Tactic, but the palest of all is from the island of Ruatan. In spite of these differences, we believe they all belong to one and the same species. We never obtained the eggs of this bird in Guatemala; but we have a young bird shot early in August in the Volcan de Fuego, at an elevation of 6000 feet, which is just commencing to change its first plumage for its adult dress.

e'. *Caudæ rectrices externæ flavæ.*

11. Icterus mesomelas.

Psarocolius mesomelas, Wagl. Isis, 1829, p. 755 [1].

Icterus mesomelas, Scl. P. Z. S. 1856, p. 301 [2]; 1860, p. 277 [3]; Ibis, 1883, p. 367 [4]; Cat. B. Brit. Mus. xi. p. 378 [5]; Scl. & Salv. Ibis, 1860, p. 34 [6]; P. Z. S. 1864, p. 354 [7]; 1867, p. 279 [8]; 1870, p. 837 [9]; 1879, p. 509 [10]; Moore, P. Z. S. 1859, p. 58 [11]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [12]; Lawr. Ann. Lyc. N. Y. vii. p. 297 [13]; viii. p. 180 [14]; Bull. U. S. Nat. Mus. no. 4, p. 23 [15]; Cass. Pr. Ac. Phil. 1867, p. 51 [16]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 402 [17]; Boucard, P. Z. S. 1883, p. 445 [18]; Tacz. Orn. Pér. ii. p. 417 [19].

Icterus atrogularis, Less. Cent. Zool. p. 73, t. 22 [20].

Oriolus musicus, Cabot, Pr. Bost. Soc. N. H. i. p. 155 [21].

Icterus salvini, Cass. Pr. Ac. Phil. 1867, p. 51 [22]; Lawr. Ann. Lyc. N. Y. ix. p. 104 [23]; Frantz. J. f. Orn. 1869, p. 302 [24].

Citrinus, capite summo sericeo-aurantio; loris, oculorum ambitu et gutture toto nigris; alis nigris, tectricibus alarum minoribus et subalaribus flavis; secundariis mediis plerumque albo stricte limbatis; caudæ rectricibus utrinque tribus externis plus quam dimidio apicali gradatim flavis, ad basin et tectricibus reliquis nigris; rostro nigro, mandibulæ basin et pedibus plumbeis. Long. tota 8·5, alæ 3·5, caudæ 4·3, rostri a rictu 0·9, tarsi 1·1. (Descr. exempl. ex Choctum, Guatemala. Mus. nostr.)

♀ mari similis.

Hab. MEXICO [1], Cordova (*Sallé* [2]), hot country of Vera Cruz (*Sumichrast* [12]), Orizaba [5], Guichicovi (*Sumichrast* [15]), Yucatan (*Cabot* [21]), Calotmul (*Gaumer* [18]); BRITISH HONDURAS, Corosal (*Roe* [5]), Belize (*Blancaneaux* [5]); HONDURAS, Omoa (*Leyland* [11]), San Pedro (*G. M. Whitely* [9]); GUATEMALA, Coban (*O. S.* [6]), Choctum (*O. S. & F. D. G.* [5]); NICARAGUA, Blewfields River (*Wickham* [8]), Greytown (*Holland* [14]), Los Sabalos (*Nutting* [17]); COSTA RICA, Valza (*Carmiol* [5]), San Carlos, Turrialba (*v. Frantzius* [24], *Carmiol* [23]); PANAMA, Lion Hill (*M'Leannan* [7 13]), Chepo (*Arcé* [5]). —COLOMBIA [10]; ECUADOR [3]; PERU [19].

Though described from Mexican specimens, *Icterus mesomelas* appears to be restricted

to the Atlantic seaboard of the State of Vera Cruz, where Sumichrast says it ascends the mountains to a height of about 3300 feet; it is also found in Yucatan, and thence passes southwards, still keeping to the eastern side of the mountain-ranges until we reach Nicaragua, where its range embraces the lowlands bordering both oceans. Its range southwards extends to Western Peru, where Captain A. H. Markham obtained an example at Payta and Stolzmann at Tumbez, and other places in the interior as high as 4800 feet above the sea. In Guatemala we only met with it in the forest country north of Coban in Vera Paz at an elevation of about 1500 feet above the sea *.

Cassin separated Costa-Rican and southern birds from those of Mexico and Guatemala under the name of *Icterus salvini*, on account of their reputed larger size and the absence of the white edging to the middle secondaries. On examining a large series from all parts of its range we find that these characters are not sufficiently pronounced to admit of any separation of the two forms. The yellow tail of this species renders it easily distinguishable from all other members of the genus with the exception of *Icterus baltimore* and its immediate allies, which, again, have the upper parts of the head as well as the back black.

Several writers speak of the excellence of the powers of this bird's song, and Herr Stolzmann has put its notes to music [19].

d. *Sexus dissimiles, alæ plus minusve albo limbatæ, cauda griseo-alba terminata.*

f'. *Rostrum debile acutum.*

12. Icterus cucullatus.

Icterus cucullatus, Sw. Phil. Mag. new ser. i. p. 436 [1]; Scl. P. Z. S. 1856, p. 301 [2]; 1864, p. 175 [3]; Ibis, 1883, p. 364 [4]; Cat. B. Brit. Mus. xi. p. 376 [5]; Scl. & Salv. Ibis, 1859, p. 20 [6]; Baird, Mex. Bound. Surv. ii. Zool., Birds, p. 19 [7]; Dugès, La Nat. i. p. 139 [8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [9]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 193 [10]; Gundl. Orn. Cub. p. 96 [11]; Sennett, Bull. U. S. Geol. Surv. iv. p. 25 [12]; v. p. 398 [13]; Merrill, Pr. U. S. Nat. Mus. i. p. 134 [14]; Boucard, P. Z. S. 1883, p. 445 [15]; Ridgw. Pr. U. S. Nat. Mus. viii. p. 570 [16]; Perez, Pr. U. S. Nat. Mus. 1886, p. 150 [17].

Pendulinus cucullatus, Cass. Pr. Ac. Phil. 1867, p. 60 [18].

Icterus cucullatus igneus, Ridgw. Pr. U. S. Nat. Mus. viii. p. 19 [19].

Aurantius; fronte, regione oculari, gutture, interscapulio nigerrimis; alis et cauda nigris, illis extus albo anguste limbatis albo quoque bifasciatis, hac tenuissime albo terminata; subalaribus flavis; rostro et pedibus plumbeo-nigris. Long. tota 7·5, alæ 3·5, caudæ 3·8, rostri a rictu 0·85, tarsi 0·9.

♀ olivaceo-fusca, dorso medio et cauda fuscescentioribus; alis obscure fuscis extus albido limbatis et bifasciatis; subtus sordide flava, abdomine dilutiore. (Descr. maris et feminæ ex insula Jolbox, Yucatan. Mus. nostr.)

Hab. North America, Texas [12 13 14].—Mexico, Temiscaltepec (*Bullock* [1]), Charco Escondido, Tamaulipas (*Couch* [7]), Guanajuato (*Dugès* [8]), valley of Mexico (*White* [3]), Chietla, Atlixco (*Perez* [17]), hot region of Vera Cruz (*Sumichrast* [9]), Cordova (*Sallé* [2]), Merida in Yucatan (*Devis* [5]), Silam in Yucatan (*Gaumer* [15]), Jolbox I.,

* The young bird from Dueñas called *I. mesomelas* (Ibis, 1860, p. 34) should have been referred to *I. wagleri*.

Mugeres I. (*Gaumer*), Cozumel I. (*Benedict* [16], *Gaumer* [5]); British Honduras, Belize (*O. S.* [6]).—Cuba [11].

Mr. Ridgway has recently proposed a division of *Icterus cucullatus* into three races [19], retaining the name *I. cucullatus* for the bird of Central Mexico and the Rio Grande valley, calling the bird from Arizona and Lower California *I. cucullatus nelsoni*, and that from Yucatan *I. c. igneus*. Whilst recognizing the distinction of the Arizona bird, we have not succeeded in separating the Yucatan bird from that of Eastern Mexico. Mr. Gaumer has recently sent us a good series of specimens from Yucatan and the islands off the coast, and amongst these we find every gradation of colour, from almost a blood-orange tint, which suggested the name *ĭgneus* to Mr. Ridgway, to the ordinary colour of the typical bird. A male shot by Salvin at Belize in December 1857 is quite typical.

In Texas *I. cucullatus* appears to be a common bird. Mr. Sennett says that it is more plentiful than all the rest of the genus combined in the neighbourhood of Brownsville and Hidalgo as well as at Lomita.

The nest appears to be nearly always placed in a bunch of Spanish moss (*Tillandsia*), which material is used in its construction, and interwoven with the living plant in the dexterous way for which members of this genus are noted. The eggs are described as white tinged with blue or buff, and nearly covered with scattered fine brown spots, with larger blotches of the same colour at the large end. In the State of Vera Cruz, Sumichrast says it is a bird of the hot region, rarely found above an elevation of 2000 feet. In Yucatan and the joining islands it lives close to the sea-level. We never met with it in the interior of Guatemala. It has been noticed in Cuba according to Dr. Gundlach [11].

13. **Icterus nelsoni.**

Icterus cucullatus nelsoni, Ridgw. Pr. U. S. Nat. Mus. viii. p. 19 [1].

Icterus cucullatus, Lawr. Mem. Bost. Soc. N. H. ii. p. 279 [2]; Scott, Auk, ii. p. 159 [3].

I. cucullato similis, sed colore aurantio magis sordido, fronte ipsa haud nigra, alis extus albicantioribus, forsan distinguendus.

Hab. North America, Arizona [3], Lower California [1].—Mexico, Mazatlan (*Grayson* [2], *Forrer*), plains of Colima (*Xantus*), Western Mexico (*Rébouch*).

We have three male specimens of this Oriole—one from La Paz in Lower California, one from Mazatlan in Western Mexico, both collected by Mr. Alphonse Forrer, and one from Western Mexico by M. Rébouch. We have no difficulty in ascribing them to the race recently separated by Mr. Ridgway as *Icterus cucullatus nelsoni*, a close ally of *I. cucullatus*, but, according to Mr. Ridgway, separable by constant characters as shown by thirty specimens examined by him. On this point we have only to remark that if the characters are constant, two names instead of three are sufficient for purposes of nomenclature.

Mr. Scott has given a good account of this species as observed by him in the Santa Catalina Mountains in Arizona. He describes at length ten nests taken by him within a small area. They differed considerably in their form and in the materials of which they were composed—coarse grasses and the fibre of the yucca being the chief materials employed, which were woven in the skilful manner peculiar to members of the genus. It will be noticed that the materials used by *I. nelsoni* differ from those employed by *I. cucullatus*, at least so far as the Rio Grande valley is concerned; this may be due to the absence of suitable *Tillandsia* in this part of Arizona, but on this point we have no information.

This bird has been traced as far north as Santa Barbara in California, and southwards it reaches Mazatlan, where, according to Grayson, it is rare, and where he only obtained two examples, both from the same tree. Here they were feeding on the fruit of the wild fig (*Ficus americanus*) in company with other Orioles.

Xantus obtained specimens of an Oriole at Colima ascribed by Mr. Lawrence to *I. cucullatus*, which probably belong to *I. nelsoni*; but on this point we cannot be certain without a reexamination of the specimens. Xantus also found this species to be very abundant at Cape St. Lucas in Lower California, and he took many nests and eggs, the former being placed in very varied situations, some in acacia trees, others in yuccas, and one in a convolvulus growing on a perpendicular rock.

Both the Mazatlan specimen and that obtained by Rébouch in Western Mexico have the feathers of the black portion of the back edged with yellowish.

14. **Icterus auratus.** (Tab. XXXIII. fig. 2.)

Icterus auratus, Bp. Consp. Av. i. p. 435 [1]; Lawr. Ann. Lyc. N. Y. ix. p. 271 [2]; Boucard, P. Z. S. 1883, p. 445 [3]; Scl. Ibis, 1883, p. 369 [4]; Cat. B. Brit. Mus. xi. p. 382 [5].

Intense aurantius interscapulio incluso; loris et gutture medio nigerrimis; alis nigris, tectricibus minoribus aurantiis, tectricum mediorum apicibus et remigum marginibus externis albis; cauda nigra, rectricibus (præter quatuor medias) albo terminatis; rostro et pedibus plumbeo-nigris. Long. tota 7·6, alæ 3·6, caudæ 3·5, rostri a rictu 0·85, tarsi 0·9. (Descr. exempl. ex Yucatan. Mus. nostr.)

Hab. MEXICO, Yucatan [1] (*Schott* [2], *Gaumer* [3]).

Though described by Bonaparte under a MS. name attached to a specimen in the Brussels Museum by Vicomte Du Bus, this *Icterus* was not subsequently recognized until 1869 [2], when Mr. Lawrence determined the specimens obtained by Dr. Schott in Yucatan to belong to *Icterus auratus*, and we have no doubt that his view, though differing from that of Cassin, is correct. It is apparently a rare bird in Northern Yucatan, where alone it has been met with. Mr. Gaumer, to whom we are indebted for the three skins we possess, speaks of its great rarity, for at the time the paper written on his birds was published (in 1883) he had only secured two examples [3]. This rarity may be more apparent than real, for the resemblance of *I. auratus* to the very common *I. cucullatus* is great, and the difference between them might readily be overlooked.

The middle of the back is orange, of the same tint as the head and rump, in *I. auratus*; whereas in *I. cucullatus* this portion is black—a difference not easily recognized in the living birds at a distance. Nothing has been recorded of the habits of this species.

g'. *Rostrum robustum.*

a. *Dorsum medium omnino aut fere omnino nigrum.*

15. Icterus pectoralis.

Psarocolius pectoralis, Wagl. Isis, 1829, p. 755 [1].

Icterus pectoralis, Des Murs, Icon. Orn. t. 10 [2]; Scl. P. Z. S. 1857, p. 205 [3]; Ibis, 1873, p. 373 [4]; 1883, p. 372 [5]; Cat. B. Brit. Mus. xi. p. 385 [6]; Scl. & Salv. Ibis, 1859, p. 20 [7]; Cass. Pr. Ac. Phil. 1867, p. 48 [8]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 23 [9]; Frantz. J. f. Orn. 1869, p. 302 [10]; Salv. Cat. Strickl. Coll. p. 264 [11].

Icterus pectoralis espinachi, Nutt. Pr. U. S. Nat. Mus. v. p. 392 [12].

Icterus guttulatus, Lafr. Mag. Zool. 1844, Ois. t. 52 [13]; Cab. J. f. Orn. 1861, p. 9 [14].

Aurantius; loris, gutture et interscapulio nigerrimis; alis nigris, speculo alari minuto et secundariis mediis extus late albis, tectricibus alarum minoribus et subalaribus flavis; pectore toto nigro guttato; cauda nigra ad basin alba, rectricibus tribus utrinque externis cinereo albo terminatis; rostro nigro, mandibulæ basi et pedibus plumbeis. Long. tota 9·0, alæ 4·2, caudæ 4·3, rostri a rictu 1·0, tarsi 1·1.

♀ mari similis, sed minus nitida, interscapulio fusco variegato et maculis pectoralibus vix ullis. (Descr. maris et feminæ ex San Gerónimo, Guatemala. Mus. nostr.)

Hab. Mexico [1 2] (*Sallé* [3]), Putla (*Rébouch* [6]), Juchitan [9], Santa Efigenia [9], Tonala [6] (*Sumichrast*); Guatemala (*Constancia* [11]), Vera Paz (*Skinner* [7]), Retalhuleu [6], Escuintla, Savana Grande [6], San Gerónimo [6] (*O. S. & F. D. G.*); Salvador [12], Acajutla (*O. S.*); Nicaragua, Chontales (*Belt* [4]), San Juan de Nicaragua [8]; Costa Rica (*Hoffmann* [14]), La Palma (*Nutting* [12]).

This *Icterus* is chiefly an inhabitant of the hot region of Western America, from South-western Mexico to Costa Rica, being abundant throughout what is called the Costa Grande of Guatemala; but it is not strictly confined to this district, for we met with it in some numbers near San Gerónimo in Vera Paz, where it associated with *I. gularis* and *I. sclateri*. The distinct pectoral spots render it a conspicuous species, and not easily confounded with any of its many allies.

There seems to be some variation in the size of different specimens of this bird, and small examples from Western Costa Rica have been separated under the name of *I. pectoralis espinachi*. But we hesitate to allow size alone to be a sufficiently differential character; moreover it appears that the bird we have described from Guatemala only exceeds in the length of its wing the largest of Mr. Nutting's specimens by 0·15 inch, a very insignificant difference.

Like *I. gularis* this species frequents the scattered trees of comparatively open country rather than the dense forest. The song of the male, though short, has the clear musical notes possessed by so many species of *Icteri*.

16. Icterus gularis.

Psarocolius gularis, Wagl. Isis, 1829, p. 754 [1].

Xanthornus gularis, Bp. P. Z. S. 1837, p. 110 [2].

Icterus gularis, Licht. Preis-Verz. mex. Vög. p. 1 [3]; Des Murs, Icon. Orn. t. 9 [4]; Cass. Pr. Ac. Phil. 1848, p. 90 [5]; 1867, p. 49 [6]; Scl. P. Z. S. 1857, pp. 205 [7], 228 [8]; 1858, p. 358 [9]; 1859, p. 365 [10]; Ibis, 1883, p. 371 [11]; Cat. B. Brit. Mus. xi. p. 384 [12]; Scl. & Salv. Ibis, 1859, p. 19 [13]; Taylor, Ibis, 1860, p. 111 [14]; R. Owen, Ibis, 1861, p. 62 [15]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 23 [16]; Perez, Pr. U. S. Nat. Mus. 1886, p. 150 [17].

Icterus mentalis, Less. Cent. Zool. p. 111, t. 41 [18].

Icterus mexicanus, Sw. Phil. Mag. new ser. i. p. 436 [19].

Aurantius; interscapulio, loris, gutture medio et cauda nigris; alis nigris albo limbatis, tectricibus alarum minoribus flavis; rostro et pedibus nigris. Long. tota 9·5, alæ 4·7, caudæ 4·2, rostri a rictu 1·0, tarsi 1·15. (Descr. exempl. ex Savana Grande, Guatemala. Mus. nostr.)

♀ sordide flava; interscapulio olivaceo-fusco; alis fuscis albo limbatis; cauda fusca olivaceo lavata; gula media fuscescente. (Descr. exempl. ex San Gerónimo, Guatemala. Mus. nostr.)

Hab. Mexico [1 18] (*Deppe* [3], *Pease* [5], *Sallé* [7]), Tableland, Temiscaltepec (*Bullock* [19]), Actopam (*Perez* [17]), San Andres Tuxtla (*Sallé* [8]), Jalapa (*de Oca* [10], *Höge* [12]), Putla (*Rébouch* [12]), Barrio [16], Chihuitan [16], Juchitan [16], Santa Efigenia [16], Tonala [1 12] (*Sumichrast*), Yucatan (*Gaumer* [12]), Cozumel I. (*Gaumer* [12]); British Honduras, Corosal (*Roe* [12]); Guatemala, Vera Paz (*Skinner* [13]), San Gerónimo (*Owen* [15]), Retalhuleu, Savana Grande [12], San Pedro Martyr [12], Zacapa (*O. S. & F. D. G.*); Salvador, Acajutla (*O. S.*); Honduras, Comayagua (*Taylor* [9]); Nicaragua [6].

Icterus gularis is extensively distributed through Southern Mexico, where it has been obtained on both sides of the mountain-range, and according to Swainson on the table-land, but this we think is probably an error; it is omitted from Sumichrast's list of the birds of the State of Vera Cruz, but he met with it abundantly on the Pacific side of the Isthmus of Tehuantepec. Mr. Gaumer has sent us a specimen from Yucatan and many examples from the island of Cozumel. In Guatemala its distribution is rather local, for skins of it do not occur in collections made by the natives of Coban; but about the plains of Salama and Zacapa, where the vegetation is much less dense, it is far from uncommon; it also spreads throughout the coast-region of Guatemala bordering the Pacific up to an elevation of about 3000 feet. It is thus a bird of the lowlands, and we have no record of it from the higher portion of the mountain-ranges. Mr. R. Owen secured an egg of this species together with the hen bird at San Gerónimo in 1860; it is pale grey, blotched and streaked with very dark brown.

There is a good deal of variation in the intensity of the orange colour of this bird, as well as in the general dimensions, but we do not think any satisfactory division is possible.

17. **Icterus sclateri.** (Tab. XXXIII. fig. 1.

Icterus sclateri, Cass. Pr. Ac. Phil. 1867, p. 49 [1]; Scl. Ibis, 1883, p. 371 [2]; Cat. B. Brit. Mus. xi. p. 385 [3].

Icterus mentalis, Cab. Mus. Hein. i. p. 185 [4]; Scl. & Salv. Ibis, 1860, p. 275 [5]; R. Owen, Ibis, 1861, p. 62, t. 2. f. 5 [6].

Icterus formosus, Lawr. Ann. Lyc. N. Y. x. p. 184 [7]; Bull. U. S. Nat. Mus. no. 4, p. 23 [8]; Scl. Ibis, 1883, p. 372 [9].

I. gulari affinis, sed rostro debili, interscapulio aurantio variegato et colore nigro ad rostri basin latiore sat diversus.

Hab. MEXICO, San Juan del Rio (*Rébouch* [3]), Santa Efigenia [8], Juchitan [7 8], Tonala [3] (*Sumichrast*); GUATEMALA, San Gerónimo (*O. S. & F. D. G.* [5], *R. Owen* [6]); NICARAGUA, San Juan [1].

This *Icterus* is best known to us as a common bird in the neighbourhood of San Gerónimo in Guatemala, where it is a resident and builds in considerable numbers. It was here that Mr. Robert Owen took several nests with their eggs, and respecting them he has given us the following note [6]:—"The materials used by this bird for its nest vary considerably; the structure, however, is the same in all. It is a compact and firmly woven nest, attached at the top to the ends of a bough, its length varying from one to two feet. In some the materials used are fine dried creepers and twigs, with here and there a leaf; in others fibrous roots and the stringy centres of the Maguey leaves; while others are formed exclusively of a species of *Tillandsia*. All are spherical at the bottom, and have a long loophole at the top for an entrance.

"The eggs are a pale grey, spotted and streaked with very dark brown; on some there are marks of faint lilac. They measure, axis 1·05 in., diam. 0·7.

"The 'Chorcha' * generally nests in colonies of four or five. I have never found more together; but it not unfrequently selects a completely isolated spot for its graceful, pendent nest. The breeding-place is mostly chosen on the banks of rivers or upon some tributary stream, over which the nest swings securely in the breeze. At first I experienced some difficulty in taking these nests, as they hang from the extreme points of the boughs, and being rarely less than eighteen feet from the ground, are inaccessible to the climber. The only way to obtain them is to provide oneself with a long light cord with a running noose at the end, and a few wild canes lashed together, so as to make two rods of the required length. At the extremity of one a bush-knife must be tied firmly, so that, when the rod is held up with the knife uppermost, the latter points to the ground, the edge facing the cane at a small angle. By means of the other rod the noose is slipped over the nest a little below the aperture through which the bird passes, and the other end left hanging down. When the bird returns to the nest the string is drawn tight, and nothing remains but to cut the twig by which the nest hangs, first twisting the other rod into the top of the nest, so as to lower it gradually when

* A name common to all the species of *Icterus*.

free. The number of eggs laid by one bird is two. There are, however, often eggs of the 'Tordito'* in the nest."

At one time the San Gerónimo bird was considered to belong to *I. mentalis* of Lesson; but that name being now placed as a synonym of *I. gularis*, Cassin proposed the name *I. sclateri* for the present bird. The same species was described as *I. formosus* by Mr. Lawrence, from specimens obtained on the Isthmus of Tehuantepec by Sumichrast. We have examples of this form from South-western Mexico, and though we notice that they are slightly smaller and have rather more white on the wing, we do not on that account consider them to be sufficiently distinct to be called by separate names, and we follow Mr. Sclater in placing them all under *I. sclateri*.

β. Dorsum medium guttatum.

18. Icterus pustulatus.

Psarocolius pustulatus, Wagl. Isis, 1829, p. 757 [1].

Icterus pustulatus, Bp. Consp. Av. i. p. 426 [2]; Scl. P. Z. S. 1858, p. 303 [3]; Ibis, 1883, p. 373 [4]; Cat. B. Brit. Mus. xi. p. 386 [5]; Cass. Pr. Ac. Phil. 1867, p. 48 [6]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 552 [7]; Scl. & Salv. Ex. Orn. p. 47, t. 24 [8]; Lawr. Mem. Bost. Soc. N. H. ii. p. 280 [9]; Salv. Cat. Strickl. Coll. p. 264 [10]; P. Z. S. 1883, p. 422 [11]; Perez, Pr. U. S. Nat. Mus. 1886, p. 150 [12].

Pendulinus californicus, Less. Rev. Zool. 1844, p. 436 [13].

Aurantius rubro tinctus; interscapulio nigro guttato; alis nigris albo late marginatis; cauda nigra ad basin flavida, rectricibus quatuor utrinque externis cinereo-albo terminatis; loris et gutture nigris; rostro nigro, mandibulæ basi et pedibus plumbeis. Long. tota 8·2, alæ 3·9, caudæ 3·8, rostri a rictu 0·85, tarsi 0·9. (Descr. maris ex Puebla, Mexico. Mus. nostr.)

♀ mari similis, sed flavescentior; interscapulio olivaceo nigro guttato; cauda olivacea.

Hab. North America, Lower California [5 13] ?—Mexico [1 2] (*Galeotti* [10]), Mazatlan [6] (*Xantus* [9], *Bishoff* [9]), Tepic (*Grayson* [9]), Presidio (*Forrer* [5]), Plains of Colima, Manzanilla Bay (*Xantus* [9]), Acapulco (*Markham* [11]), hot region of Vera Cruz (*Sumichrast* [7]), Puebla [5], La Parada [3], Atlisco [5] (*Boucard*), Chietla, Ianhuiatlan (*Perez* [12]), Tonala (*Sumichrast* [5]).

This species of *Icterus* has a wide range throughout Mexico, and it is doubtful if it is found beyond the limits of that country, though we have a skin reputed to be from California, from which country Lesson's type of *P. californicus* is said to have come. Though it occurs in the State of Vera Cruz as well as that of Puebla, it is probably more abundant on the western side of Mexico from Mazatlan to Tehuantepec. Grayson has the following note concerning it:—

"Of the numerous species of Orioles inhabiting the tropics, this one is the most familiar about the locality of Mazatlan, and indeed of all Western Mexico. I found it as far south as Tehuantepec, Guadalajara, Tepic, and other places, where I always met with it as a well-known and common species. Its long pensile nest, its sprightly little

* *Molothrus æneus.*

song, and more especially the gay plumage of a fully adult male, render it a conspicuous bird among the feathered songsters of its native woods.

"The nests are generally suspended from a bough, slender branch, or recumbent twig of the acacia-tree, protected from the intense rays of the sun by the beautiful canopy of its fringed foliaged branches. Such a tree as the tamarind acacia is often selected, and one or two nests are sometimes seen swaying in the breeze, beneath the generous shade of this perennial beauty of the forest. The nest is composed of the thread-like or elastic fibres of the maguey plant. I have seen some in which the cotton-thread and twine were component parts of its elastic and firm structure. The nests are of various lengths, conformable to the materials at hand for the intricate formation of the warp necessary for the weaving this unique and airy abode in which to rear their little family. The inside bottom is lined with the downy substance of the tree cotton intermixed with a few feathers. In one nest I found an entire skein of yellow silk which it had doubtless picked up where some village brunette had dropped it.

"The eggs are generally five in number, rather long, of a pale blue ground, with numerous hieroglyphic scratches confluent round the larger end."

γ. *Dorsum medium fere omnino flavum.*

19. **Icterus graysoni.**

Icterus graysoni, Cassin, Pr. Ac. Phil. 1867, p. 48[1]; Grayson, Pr. Bost. Soc. N. H. xiv. p. 280[2]; Finsch, Abh. nat. Ver. zu Bremen, 1870, p. 336[3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 280[4]; Scl. Ibis, 1883, p. 374[5]; Cat. B. Brit. Mus. xi. p. 387[6].

Flavo-aurantius, subtus clarior; loris et gutture medio nigris; interscapulio maculis parvis nigris ornato; alis nigris albo marginatis, harum tectricibus minoribus flavis nigro guttatis; cauda nigra ad basin flavido-alba, rectricibus quatuor utrinque externis albido terminatis; rostro corneo, pedibus nigricantibus. Long. tota 7·5, alæ 4·0, caudæ 3·2, rostri a rictu 1·0, tarsi 1·0.

♀ supra olivacea, subtus flavida; alis fuscis albido limbatis; cauda olivacea; loris et gutture medio nigricantibus. (Descr. maris et feminæ ex insulis Tres Marias. Mus. nostr.)

Hab. Mexico, Tres Marias Islands (*Grayson* [1 2 4], *Forrer* [6]).

As yet *Icterus graysoni* is only known to occur on the Tres Marias Islands, off the coast of Western Mexico, where the late Col. A. J. Grayson discovered it, and where Mr. Alphonse Forrer subsequently found it. To the latter naturalist we are indebted for the specimens we possess. Some of Grayson's specimens were fully described by Cassin, and others at great length by Dr. Finsch. The discoverer of this interesting species has published the following notes respecting it[2]:—

"This superb Oriole is one of the most beautiful of its kind and is entirely confined to the islands of the Tres Marias, where it is the only representative of its genus. There is a closely allied variety on the main coast (*Icterus pustulatus*), but on comparing the two the difference in the marking is at once observable, as also the larger size of the island bird . . . . The nest of this Oriole, like that of all of its congeners, is pensile;

generally suspended from the extreme end of a slender decumbent branch or twig in some shady spot, where it may swing to and fro in the breeze free from entanglement with other branches. The nest, which is purse-shaped, and about twelve or thirteen inches in length, with the entrance near the top, is composed of a long narrow grass or the fibres of maguey leaves, which are very strong and elastic, and lined with silk-cotton; it is firmly and well woven together, and would be difficult to pull apart; it differs a little in form from those found in the vicinity of Mazatlan. Few birds surpass this Oriole in discovering the hiding-places of the various kinds of insects and their larvæ upon which it feeds. With its exceedingly sharp bill it searches and probes every crevice in the bark and leaves of trees and with unceasing industry; the number it destroys in one day alone must be very great. Thus we see beauty and elegance combined with utility in the place assigned to this species in the great economy of nature in checking the accumulation of insects. During my stay upon the islands I often saw them clinging about decaying logs or branches, sometimes with their heads downwards, busily engaged in piercing the rotten wood in search of wood-worms or borers and white ants; it also feeds on various kinds of fruit, Pitahaya (*Pitajaia cactus*) they are very partial to. In the islands of the Tres Marias these birds become excessively fat, finding there an abundance of food, with nothing to molest them in their peaceful green island home."

Subfam. V. *QUISCALINÆ.*

Nares plus minusve membrano obtectæ; mesorhinium altum, haud dilatatum, rotundatum; tarsi longi; cauda cuneata.

SCOLECOPHAGUS.

Scolecophagus, Swainson, Faun. Bor.-Am. ii. p. 494 (1831); Scl. Cat. B. Brit. Mus. xi. p. 390.

There are two recognized species of *Scolecophagus*, both belonging to North America, one of which extends its range over the greater part of Mexico. The genus has some affinities to the next genus, *Dives*; but the wings are considerably longer, the bill shorter, and the membrane above the nostrils more fully developed, the tarsi and toes also are more slender; both, however, have a slightly rounded tail, and in this respect they differ from the members of the genus *Quiscalus*, the tail of which is distinctly wedge-shaped. The bill of *S. cyanocephalus* has a slightly rounded culmen, the mesorhinium being rounded, not flat or dilated; the nasal fossa is deep, the nostrils lying along its lower edge, and margined above by a well-developed membrane; the maxilla is slightly compressed towards the tip, and its tomia considerably incurved; the legs are long, the tarsi and toes being rather slender; the wings are moderately long, the second quill slightly the longest, the first and fourth being nearly equal, the longest secondaries are equal to the seventh quill; the tail is slightly rounded, the feathers themselves being rounded at their ends. The male considerably exceeds the female in size; they nest in colonies, and are probably polygamous.

1. Scolecophagus cyanocephalus.

Psarocolius cyanocephalus, Wagl. Isis, 1829, p. 758[1]; 1831, p. 527[2].

Scolecophagus cyanocephalus, Baird, Mex. Bound. Surv. ii. Zool., Birds, p. 20[3]; Cass. Pr. Ac. Phil. 1866, p. 413[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553[5]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 206[6]; Coues, B. N. W. p. 199[7]; Lawr. Mem. Bost. Soc. N. H. ii. p. 281[8]; Scl. Ibis, 1884, p. 151[9]; Cat. B. Brit. Mus. xi. p. 390[10]; Perez, Pr. U. S. Nat Mus. 1886, p. 152[11].

Scolecophagus mexicanus, Sw. An. in Menag. p. 302[12]; Bp. Consp. Av. i. p. 423[13].

Niger æneo lavatus; capite undique et collo purpureo nitentibus; rostro et pedibus nigris. Long. tota 9·0, alæ 5·2, caudæ 4·0, rostri a rictu 1·0, tarsi 1·5. (Descr. maris ex urbe Mexico. Mus. nostr.)

♀ obscure fusca, gula vix dilutiore; dorso postico, alis extus et cauda æneo lavatis; rostro et pedibus nigris. Long. tota 8·0, alæ 4·8, caudæ 3·7, rostri a rictu 0·8, tarsi 1·2. (Descr. feminæ ex Oaxaca, Mexico. Mus. nostr.)

Hab. North America, from the plains to the Pacific and from the Saskatchewan R. southwards.—Mexico [1 2 4 12], Santa Rosalia (*Couch* [3]), Mazatlan (*Grayson* [8]), Ciudad in Durango (*Forrer* [10]), valley of Mexico [10] (*le Strange*), plateau of Mexico (*Sumichrast* [5]), Oaxaca (*Fenochio* [10]), San Baltazar, Nativitas (*Perez* [11]).

Scolecophagus cyanocephalus was described from Mexican specimens now in the Berlin Museum, and Sumichrast tells us that it is very abundant on the plateau of that country, but that it rarely shows itself in the valley of Orizaba except in winter[5]. We have an example from the State of Oaxaca, which is probably the southern limit of its range. In the United States it is a common bird from the high central plains to the Pacific, and, except perhaps in the more northern localities, it appears to be a resident, congregating in flocks during the winter months, which again disperse during the summer season. Dr. Coues has given a good account of its habits, as observed by himself chiefly in Arizona[7]; he describes the nest as usually placed in the fork of a tree several feet from the ground, and as of a bulky structure like a miniature crow's nest, but deeper and more compact; the basement and outer wall are composed of short crooked interlaced twigs matted with a variety of softer materials, and rarely plastered with mud, which, however, is not used in great quantity, often apparently no more than sticks to the roots, weeds, &c. The lining consists of a quantity of hair, rootlets, &c. The eggs are dull olivaceous grey, pale bluish, or greenish grey, thickly scattered all over with various shades of brown from dark chocolate to light umber.

DIVES.

Dives, Cassin, Pr. Ac. Phil. 1866, p. 413; Scl. Cat. B. Brit. Mus. xi. p. 391.

Three species of *Dives* are now recognized, of which *D. sumichrasti* of Mexico and Guatemala is the only one which here concerns us; the other species are *D. warszewiczi* of Western Ecuador and Peru, and *D. atroviolaceus* of Cuba. The sexes are alike in *D. sumichrasti* both in colour and size, which probably indicates different domestic arrangements to those of *Scolecophagus*; the bill is rather long and stout, the culmen

being slightly incurved; the nostrils are at the end of the nasal fossa, and have but a slight membrane along their upper edge, the tomia of the maxilla is slightly undulating and somewhat incurved; the legs and toes are rather strong; the wing is short and rounded, the fifth primary being the longest, the first slightly longer than the ninth, the longest secondaries reach to the end of the seventh primary. The tail is rounded, each feather being rounded at its tip.

1. Dives sumichrasti.

Icterus dives, Licht. Preis-Verz. mex. Vög. p. 1; J. f. Orn. 1863, p. 56[1].
Lamprospar dives, Boucard, P. Z. S. 1883, p. 446[2].
Scolecophagus dives, Cass. Pr. Ac. Phil. 1866, p. 413[3].
Quiscalus sumichrasti, de Sauss. Rev. Zool. 1859, p. 119[4], t. 3. f. 2–4; Scl. P. Z. S. 1859, pp. 365[5], 381[6]; 1864, p. 175[7]; Scl. & Salv. Ibis, 1860, p. 398[8]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553[9].
Dives sumichrasti, Scl. Ibis, 1884, p. 152[10]; Scl. Cat. B. Brit. Mus. xi. p. 392[11].
Dives dives, Perez, Pr. U. S. Nat. Mus. 1886, p. 152[12].
Quiscalus, sp.?, Scl. P. Z. S. 1856, p. 300[13].

Sericeo-niger, unicolor; rostro et pedibus nigris. Long. tota 9·5, alæ 4·6, caudæ rect. med. 4·1, rect. lat. 3·6, rostri a rictu 1·1, tarsi 1·4. (Descr. feminæ ex Coban, Guatemala. Mus. nostr.)
♂ omnino similis, sed paullo major.

Hab. Mexico[12] (*Deppe*[1]), Chiltepec, Cosamaloapam, Valle Real (*Deppe, in Mus. Berol.*), valley of Mexico (*White*[7]), tierra caliente of the Atlantic slope (*le Strange*), hot and temperate regions of Vera Cruz (*Sumichrast*[9]), Plan del Rio (*Perez*[12]), Jalapa (*de Oca*[5], *Höge*[11]), Orizaba (*Botteri*[11]), Playa Vicente (*Boucard*[6]), Merida in Yucatan (*Gaumer*[2], *Devis*[11]); British Honduras, Belize (*Blancaneaux*[11]); Guatemala, Choctum[11], Achil, Coban[8], Tactic[8] (*O. S. & F. D. G.*).

This species has a somewhat restricted range, being confined to the eastern slope of the mountains of Southern Mexico, Yucatan, and thence southwards to the highlands of Vera Paz. Sumichrast says it is very common in the hot and temperate zones of the Department of Vera Cruz up to an elevation of about 4000 feet; he adds it is a bird of the woods and less sociable than the rest of its tribe. In Yucatan Mr. Gaumer speaks of it as one of the commonest birds, that it is abundant in all the towns as well as in the forests, that he has seen it in the busiest streets of Merida, even entering houses in search of food. In Guatemala its range is very restricted, and it is first met with near the village of Tactic (that is, near the border of the most rainy district of Alta Vera Paz); and it is quite common in Coban, where it frequents the fruit and other trees so freely distributed about the town.

QUISCALUS.

Quiscalus, Vieillot, Anal. p. 36 (1816); Scl. Cat. B. Brit. Mus. xi. p. 393.

The species of *Quiscalus* with which we are chiefly concerned belong to the section

called *Megaquiscalus* by Cassin, which contains the largest species of the genus. Mexico and Central America, indeed, appear to be their headquarters, for only *Q. major*, of the Atlantic States of North America, from which *Q. macrurus* is barely separable, appears to be found outside our limits, though *Q. macrurus* spreads southwards into Western Peru. One other species is ascribed to Mexico, *Q. mexicanus*, which, according to Cassin (for we do not know the bird), belongs to the section *Holoquiscalus*, of which *Q. lugubris* is a better known member.

Q. macrurus, one of the most familiar birds in Central America, lives in societies, building in trees and reeds; the male much exceeds the female in size, and they are probably of polygamous habits. The bill of *Q. macrurus* is long, the culmen slightly depressed for the greater part of its length, and rather abruptly curved towards the tip; the tomia is slightly incurved, and there is hardly any apparent angle towards its base; the nostrils are bordered above by a conspicuous membrane; the rictal bristles are very short; the tarsi and toes are very strong, especially the former, and the hind claw well developed; the wings are pointed, the third primary being the longest, the first equalling the fifth, the longest secondaries falling a little short of the seventh; the tail is long and cuneate, and the lateral feathers, when the bird is in flight, are brought together over the median feathers, hence their trivial name of "boat-tails."

The general colour of the male is black with a rich purple hue, the females are more or less brown beneath; this difference in the plumage of the sexes applies chiefly to the larger members of the genus, in others the sexes are alike.

1. Quiscalus macrurus.

Quiscalus macrurus, Sw. An. in Menag. p. 299[1]; Bp. Consp. Av. i. p. 424[2]; Scl. P. Z. S. 1856, p. 300[3]; 1858, p. 358[4]; 1864, p. 175[5]; Ibis, 1884, p. 156[6]; Cat. B. Brit. Mus. xi. p. 396[7]; Scl. & Salv. Ibis, 1859, p. 20[8]; P. Z. S. 1870, p. 837[9]; Taylor, Ibis, 1860, p. 112[10]; Lawr. Ann. Lyc. N. Y. viii. p. 180[11]; Bull. U. S. Nat. Mus. no. 4. p. 24[12]; Cass. Pr. Ac. Phil. 1866, p. 410[13]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553[14]; Frantz. J. f. Orn. 1869, p. 303[15]; Salv. Cat. Strickl. Coll. p. 270[16]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 383[17]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 392[18]; vi. p. 402[19]; Boucard, P. Z. S. 1883, p. 446[20]; Ridgw. Pr. U. S. Nat. Mus. viii. p. 570[21].

Quiscalus macrurus?, Cass. Pr. Ac. Phil. 1860, p. 138[22]; Salv. P. Z. S. 1870, p. 191[23].

Chalcophanes macrourus, Cab. J. f. Orn. 1861, p. 82[24].

Quiscalus major, var. *macrurus*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 225[25]; Lawr. Mem. Bost. Soc. N. H. ii. p. 281[26].

Quiscalus major, Bp. P. Z. S. 1837, p. 110[27]; Moore, P. Z. S. 1859, p. 58[28]; Salv. Ibis, 1866, p. 194[29]; Lawr. Mem. Bost. Soc. N. H. ii. p. 281[30].

Quiscalus peruvianus, Sw. An. in Menag. p. 354[31]; Cass. Pr. Ac. Phil. 1866, p. 412[32].

Quiscalus assimilis, Scl. Cat. Am. B. p. 141[33]; Ibis, 1884, p. 156[34]; Cat. B. Brit. Mus. xi. p. 396[35]; Wyatt, Ibis, 1871, p. 330[36]; Tacz. Orn. Pér. ii. p. 431[37].

Nitide atro-purpureus in dorso et ventre imo in æneum transiens; alis caudaque æneo-nigris; rostro et pedibus

nigris. Long. tota 17·0, alæ 8·0, caudæ rect. med. 9·0, rect. lat. 5·3, rostri a rictu 1·8, tarsi 2·0. (Descr. maris ex Choctum, Guatemala. Mus. nostr.)

♀ fusca æneo tincta; alis et cauda dorso concoloribus; subtus brunnea, ventre imo et crisso nigricantibus. Long. tota 14·3, alæ 6·0, caudæ rect. med. 6·0, rect. lat. 4·0, rostri a rictu 1·4, tarsi 1·6. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America, Texas.—Mexico [2 25], Manzanilla Bay, Plains of Colima (*Xantus* [30]), Guadalajara (*Grayson* [26]), Real del Monte [1], valley of Mexico [5] (*White*), temperate and alpine regions of Vera Cruz (*Sumichrast* [14]), Cordova (*Sallé* [3]), valley of Cuernavaca (*le Strange*), Orizaba (*Botteri* [7]), Oaxaca (*Fenochio* [7]), Barrio, Juchitan (*Sumichrast* [12]), Merida in Yucatan (*Gaumer* [20]), Cozumel I. (*Benedict* [21], *Gaumer*); British Honduras, Belize (*Blancaneaux*), Half-Moon Cay (*O. S.* [29]); Guatemala (*Constancia* [16]), everywhere about houses and villages (*O. S. & F. D. G.*), San José de Guatemala, Escuintla, Dueñas [8], Guatemala city, San Gerónimo, Choctum [7], &c. (*O. S. & F. D. G.*); Honduras, San Pedro (*G. M. Whitely* [9]), Comayagua (*Taylor* [4 10]), Omoa (*Leyland* [26]); Nicaragua, Greytown (*Holland* [11]), Sucuya [17], Los Sabalos [19], Omotepé I. [13] (*Nutting*); Costa Rica (*Ellendorf* [22]); Panama, Calobre, Calovevora (*Arcé* [23]), Lion Hill Station (*M'Leannan* [12]).—Colombia [33 34]; Peru [31 37].

The birds inhabiting the more southern portion of the range of this species (that is to say, from the State of Panama to Western Peru) have been separated, on account of their smaller size, from the more northern birds; but on closely comparing the two we find that, though the average dimensions of the northern bird are greater than those of the southern, no definite separation can be made between them with any regard to their geographical distribution. It will also be seen that the range of the species, as a whole, is practically uninterrupted from Texas to Peru. The bird of Western Mexico, which Mr. Sclater has recently separated under the name of *Quiscalus graysoni*, also rests on its much smaller dimensions; but as we have no materials to prove that gradations in size exist between the two we here treat it as distinct, although we should not be surprised to find that it too is but an extreme form of the true *Q. macrurus*.

The northern range of this species extends into Texas, where it breeds, and whence it spreads over the greater part of Mexico, to the exclusion perhaps of the north-western portion; it is also found throughout Central America, where it frequents the larger towns as well as villages, its favourite resort being the stable, occasionally perching on the backs of the horses and mules, or invading the manger and picking up stray grains of maize. It breeds in numbers near Dueñas, making its nest both in the willows that grow near the lake and in the reeds on its banks. The breeding season extends over some time; the young birds and eggs were found in adjacent nests, and on the coast-region young birds were seen able to fly in the early part of March. The nest is usually made of grass and placed amongst upright branches, the grass being entwined round each twig to support the structure. The eggs vary a good deal in their ground-colour, some being greyish white, others light drab, and others again of a deep drab; the

markings are principally of a dark brown, and are distributed in the shape of drops or irregular patches and undulating lines; intermingled with these dark markings are others of purplish brown.

Mr. Gaumer has recently sent us a series of specimens from Ruatan Island, and also from Mugeres Island, off the coast of Yucatan, and we note that females from these places are rather darker than is usual in individuals of the same sex from the mainland; the males do not differ in colour, but they are perhaps a trifle smaller. It is said that these birds are polygamous, and the great difference in size between the sexes supports this view; but we have no direct evidence on this point.

2. **Quiscalus graysoni.**

Quiscalus graysoni, Scl. Ibis, 1884, p. 157[1]; Cat. B. Brit. Mus. xi. p. 397[2].

Quiscalus palustris, Cass. Pr. Ac. Phil. 1866, p. 411[3].

Quiscalus major, var. *palustris,* Lawr. Mem. Bost. Soc. N. H. ii. p. 282[4].

Præcedenti persimilis quoad corporis colores, sed multo minor. Long. tota 14·0, alæ 6·4, caudæ rect. med. 6·7, rect. lat. 4·4, rostri a rictu 1·5, tarsi 1·8.

♀. Long. tota 10·6, alæ 5·3, caudæ rect. med. 4·8, rect. lat. 3·4, rostri a rictu 0·9, tarsi 1·5. (Descr. maris et feminæ ex Mazatlan, Mexico. Mus. nostr.)

Hab. Mexico, Mazatlan (*Grayson*[3 4], *Forrer*[1 2]).

This is the bird considered by Cassin to be the species described by Swainson as *Quiscalus palustris*; but this identification was questioned by Mr. Sclater, and we think rightly so. It is exceedingly closely allied to *Q. macrurus*, but its smaller size and much shorter tail perhaps sufficiently distinguish it. Grayson says of it, that it is very common in the coast-region of Mazatlan, where it is seen in flocks frequenting the marshes on the esteros or creeks in search of small crabs and water-insects. Many of them, however, take up their abode in towns and villages and become very docile; they are there attracted by the grains of waste maize and the refuse crumbs and meat thrown from the dwellings. In the town of San Blas they are so numerous and domestic as to be a nuisance, often entering the houses and carrying off whatever kind of provision they can find, meat as well as grain. At the hotel where he was stopping in that town it was necessary to keep a servant watching the table whilst the meals were being prepared to keep them from demolishing the tortillas and beans. In the city of Mazatlan about twenty congregated in front of his window to receive their daily bread, a few crumbs of which he used to throw to them every morning.

They always build their nests in communities, selecting a grove of ordinary sized trees, usually near some freshwater lagoon, and sometimes in the trees that ornament the dwellings of the natives. The nests are placed in the topmost branches, and are composed of coarse grass and roots externally and plastered inside with cowdung or mud. The eggs are usually five, of a pale blue colour, with numerous zigzag marks of black[4].

3. **Quiscalus tenuirostris.**

Quiscalus tenuirostris, Sw. An. in Menag. p. 299[1]; Bp. Consp. Av. i. p. 424[2]; Cass. Pr. Ac. Phil. 1866, p. 411[3]; Scl. Ibis, 1884, p. 157, t. 5[4]; Cat. B. Brit. Mus. xi. p. 397[5].

Scaphidurus palustris, Sw. Phil. Mag. new ser. i. p. 436[6].

Atro-purpureus, unicolor; alis et cauda nitenti-nigris; tibiis brunnescentibus; rostro tenui. Long. tota 13, alæ 6·8, caudæ rect. med. 7·3, rect. lat. 4·4, rostri a rictu 1·65, tarsi 2·0. (Descr. exempl. ex Mexico. Mus. Brit.)

♀ supra fusca; dorso postico, alis et cauda nigricantibus; superciliis distinctis et corpore subtus pallide brunnescentibus; gula et abdomine medio albicantioribus; tibiis et crisso nigricante-fuscis; rostro nigro, pedibus nigricantibus. Long. tota 11·0, alæ 5·0, caudæ rect. med. 5·0, rect. lat. 3·4, rostri a rictu 1·3, tarsi 1·55. (Descr. exempl. ex urbe Mexico. Mus. nostr.)

Hab. Mexico[3], near the city[1] (*Bullock*[6], *Boucard*[4 5]).

This *Quiscalus* appears to be confined to Central Mexico, for all the specimens we have seen were obtained, we believe, in the neighbourhood of the city of Mexico itself, and we agree with Mr. Sclater that it is extremely probable that Swainson applied the name *Scaphidurus palustris* to the same bird, which he says was found frequenting the marshes in the neighbourhood of Mexico. *Q. palustris* is the older name; but, as there is some doubt as to its application, it is better to call the bird *Q. tenuirostris*, according to recent custom, the name being very appropriate. The male of this species is readily distinguishable from *Q. macrurus* by its slender bill. The female is still more divergent, the breast being much paler than that of the female of the allied species, and there is a prominent superciliary streak which is characteristic. Nothing has been recorded of the habits of this species, except that it inhabits the marshes near the city of Mexico.

4. **Quiscalus mexicanus.** = Dives dives?

Quiscalus mexicanus, Cass. Pr. Ac. Phil. 1866, p. 408[1]; Lawr. Bull. U. S. Nat. Mus. no. 4. p. 24[2].

"Black, entire plumage of the head and body with a rich golden purple or violet lustre, especially on the neck behind, and breast; shoulders bluish purple; wings and tail and under tail-coverts with green lustre; the upper tail-coverts also show a green lustre in some lights, but are tinged also with purple; bill and feet black.

"*Adult male.* Bill longer than the head, thick, curved, especially in the terminal third of its length; wing moderate, second and third quills longest; tail moderate, graduated; legs and feet strong. Total length $9\frac{3}{4}$ to $10\frac{1}{4}$ inches, wing $4\frac{1}{2}$, tail $4\frac{1}{4}$ to $4\frac{1}{2}$ inches."

Hab. Mexico[1] (*Bruzin*), Guichicovi (*Sumichrast*[2]).

We have not yet recognized this bird, which, according to Cassin, belongs to a different section of the genus from that of which we have just been treating, as it is more nearly allied to *Q. lugubris* than to the larger members of the genus. The type is in the Museum of the Academy of Philadelphia, and formed part of a large collection made in Mexico by M. Bruzin. Mr. Lawrence recognized a specimen of Sumichrast's, obtained in the Isthmus of Tehuantepec, as belonging to this species.

Fam. CORVIDÆ *.

Subfam. *CORVINÆ*.

Alæ elongatæ, acutæ, cauda plerumque brevis.

CORVUS.

Corvus, Linnæus, Syst. Nat. i. p. 155 (1766); Baird, Brew., & Ridgw. N. Am. B. ii. p. 232; Sharpe, Cat. B. Brit. Mus. iii. p. 13.

So far as America is concerned *Corvus* is a Nearctic genus, well represented by several species in North America, of which at least three are found within our limits, viz.:—the Raven (*C. corax*) as far south as Honduras; the peculiar Mexican *C. mexicanus*, whose range seems restricted to a limited district in Western Mexico; and *C. cryptoleucus*, which occurs in the northern frontier States of Mexico. Two of these, viz. *C. corax* and *C. cryptoleucus*, are typical species of *Corvus*, whilst *C. mexicanus* belongs to the section *Corone*, which Mr. Sharpe treats as a separate genus.

Corvus has been so often characterized that it seems superfluous to do so here; but we may remark that we use the name in the wide sense as employed by Messrs. Baird, Brewer, and Ridgway, keeping the Ravens, with their long lanceolate, narrow throat-feathers, and the Crows, in which these feathers are of normal shape, under one generic name. Greater diversity of form is found in members of this section of the family in other parts of the world than in America, and these have been treated of by Mr. Sharpe, who has given an elaborate key of the genera. This key strikes us as rather artificial in some respects, bringing into proximity forms not really by any means related.

1. Corvus corax.

Corvus corax, Linn. Syst. Nat. i. p. 155 [1]; Coues, B. N. W. p. 204 [2]; Sharpe, Cat. B. Brit. Mus. iii. p. 14 [3].

Corvus carnivorus, Bartr. Trav. E. Florida, p. 290 [4]; Scl. P. Z. S. 1860, p. 252 [5]; Dresser, Ibis, 1865, p. 494 [6]; Dugès, La Nat. i. p. 139 [7].

Corvus corax, var. *carnivorus*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 234 [8]; Lawr. Mem. Bost. Soc. N. H. ii. p. 283 [9]; Bull. U. S. Nat. Mus. no. 4, p. 25 [10].

Corvus sinuatus, Wagl. Isis, 1829, p. 748 [11].

Corvus corax sinuatus, Check-List N. Am. B. p. 245 [12]; Perez, Pr. U. S. Nat. Mus. 1886, p. 153 [13].

Corvus cacalotl, Wagl. Isis, 1831, p. 527 [14]; Bp. P. Z. S. 1837, p. 115 [15]; Consp. Av. i. p. 387 [16]; Scl. & Salv. Ibis, 1859, p. 21 [17]; 1860, p. 34 [18]; Taylor, Ibis, 1860, p. 112 [19]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 553 [20].

Corvus nobilis, Gould, P. Z. S. 1837, p. 79 [21]; Bp. Consp. Av. i. p. 386 [22].

Nitente purpureo niger, unicolor; plumis ad basin griseis; gulæ plumis lanceolatis elongatis; rostro et pedibus

---

* We are largely indebted, in writing on this family, to Mr. Sharpe's 'Catalogue of the Birds of the British Museum,' vol. iii., wherein the Corvidæ of the world are treated of.

nigris. Long. tota 24·0, alæ 17·3, caudæ rect. med. 9·5, rect. lat. 7·2, rostri a rictu 3·0, tarsi 2·7. (Descr. feminæ ex Dueñas, Guatemala. Mus. nostr.)

Hab. North America generally [2 8], Texas [6].—Mexico [11 14 21], Mazatlan (*Grayson* [9]), Guanajuato, Guadalajara (*Dugès* [7]), Orizaba (*Sallé* [5]), alpine region of Vera Cruz and Cerro Colorado near Tehuacan (*Sumichrast* [20]), Jalapa and State of Puebla (*Perez* [13]), Barrio, Tapana (*Sumichrast* [10]); Guatemala (*Velasquez* [15]), Estansuelas, Dueñas, Chimaltenango (*O. S.* [17]), ridge above Calderas (8300 feet), Volcan de Fuego (12,000 feet), Volcan de Atitlan, Quezaltenango, San Gerónimo (*O. S. & F. D. G.*); Honduras, between Opotelma and Siguatepeque (*Taylor* [19]).—Widely distributed throughout Europe and Northern and Central Asia.

Mr. Sharpe, in compiling his third volume of the 'Catalogue of the Birds of the British Museum,' examined very carefully a large series of Ravens from many parts of the world; and the conclusion he came to, which is also that of Mr. Dresser, was that the species into which *Corvus corax* is sought to be divided are untenable, and that only one species of this form is found throughout Europe, Northern and Central Asia, and the whole continent of North America. It is true that North-American writers still apply a third name to the bird of the North-American continent, but tangible characters whereby to distinguish it altogether fail us. Several names have been applied to the bird from Mexico, where its presence has been noted since the days of Hernandez, in whose work it appears as the Cacalotl, a name adopted by Wagler in 1831, and one under which the Raven is frequently mentioned by writers on Mexican and Central-American birds. Sumichrast says it is the only species of this genus inhabiting the State of Vera Cruz, where it is found in the alpine region; he adds that it is rarely seen except within the limits of the plateau, where it is abundant. The Cerro Colorado, near Tehuacan, to the south of the State of Puebla, is the rendezvous of a large number of these birds. At the time of the flowering of the maguey (*Agave*), with which the sides and summit of that mountain are covered, the Ravens gather there in greater abundance than at any other time. The blossom of the *Agave* is their favourite food, as it is also of other birds, owing to the honeyed sweetness of their corollæ. In Guatemala the Raven is chiefly met with in the highlands, its principal resort being such places as Dueñas, Chimaltenango, Quezaltenango, &c., and we have observed it in the Volcan de Fuego as high as 12,000 feet above the level of the sea; but it is not exclusively confined to these high elevations, for it is found not unfrequently in the plain of Salama, at an elevation of 3000 feet, and on the plain of Zacapa, which is less than 1000 feet above the sea. In Honduras Mr. Taylor saw two large crows on a lofty pine-tree on the ridge between Opotelma and Siguatepeque, which he refers to this species. Though he did not obtain a specimen, it can hardly be doubted he was right in so doing. This point marks the southern limit of the Raven in Central America, so far as our present knowledge goes.

2. Corvus cryptoleucus.

Corvus cryptoleucus, Couch, Pr. Ac. Phil. 1854, p. 66[1]; Baird, Mex. Bound. Surv. Zool. ii., Birds, p. 20[2]; Dresser, Ibis, 1865, p. 494[3]; Baird, Brew., & Ridgw. N. Am. B. p. 242[4].

The fourth quill is longest; the third and fifth equal; the second longer than the sixth; the first equal to the seventh. Glossy black with violet reflections, feathers of neck all round black, and breast snow white at the base. Length about 21·00, wing 14·00, tail 8·50. Feathers of the throat lanceolate; bristly feathers along the base of the bill, covering it for nearly two thirds of its length. (Baird, Brew., and Ridgw. N. Am. B. ii. p. 242.)

Hab. North America along the southern border of the United States.—Mexico, Tamaulipas (*Couch*[1]), Janos (*Kennerly*[2]), Charco Escondido (*Couch*[2]).

This species was described from Mexican specimens obtained during the United States Boundary Survey, and it appears to be not uncommon in the States of Northern Mexico, in the valley of the Rio Grande, and in that of the Gila, but nothing is known of it in Central or Southern Mexico. We have no specimen of this species, nor are there any in the British Museum, and we have nothing to add to the account given in the 'History of the North-American Birds.'

3. Corvus mexicanus.

Corvus mexicanus, Gm. Syst. Nat. i. p. 375[1]; Licht. Preis-Verz. mex. Vög. p. 1, cf. J. f. Orn. 1863, p. 56[2]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 233[3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 283[4].

Nitente purpurascente-niger; capite summo magis purpurascente; corpore subtus æneo-viridi micante; rostro et pedibus nigris. Long. tota 14·0, alæ 10·3, caudæ 6·5, rostri a rictu 1·8, tarsi 1·7. (Descr. maris ex Mazatlan, Mexico. Mus. nostr.)

Hab. Mexico[1] (*Deppe*[2]), Mazatlan (*Grayson*[4], *Xantus*[4]).

This pretty little Crow, which has been identified with the *Corvus mexicanus* of Gmelin, is distinguished by the lustre of its plumage, which is almost exactly of the same tint as that of the male of *Quiscalus macrurus*. Its range appears to be very restricted, and we only know of its occurrence at Mazatlan and at San Blas, on the sea-coast of North-western Mexico. Grayson says that it is quite common at the latter place, where it breeds, forming its nest in the tall cocoa-nut palms that grow in the town; he also found it breeding in similar situations in the suburbs of Mazatlan; but it is more numerous on the Mazatlan river, where he found its nest in the thorny *Mimosa*-trees. The nest is composed of small sticks and grass, much like that of the Common Crow (*C. americanus*); the eggs, too, are much like those of that species, only smaller. Its habits resemble those of the Common Crow, though the present species is a little more arboreal, feeding on the various kinds of fruits which it finds in the tropical forests. Like the Common Crow, however, it often descends to the ground in search of insects and their larvæ, which it hunts for by turning up bits of wood and in the newly-ploughed fields; but it may more frequently be seen upon the shore at low

tide, near the mouths of the esteros or creeks, searching for the small crabs, snails, and other shell-fish which abound in such localities.

In the autumn and winter months they congregate in large flocks, visiting the fields of Indian corn first ripened, in which they do considerable damage; but, unlike the American Crow, it is not persecuted to death for this bit of roguery. The natives seldom molest them. They sometimes visit the sand-bars of the rivers in large flocks for the purpose of bathing. The voice of this Crow is somewhat like that of the common species, but less harsh—indeed some of its notes are quite musical.

Subfam. *GARRULINÆ.*

Alæ breves, rotundatæ; cauda plus minusve elongata.

A. *Nares plus minusve plumis setosis obtectæ.*

a. *Plumæ nasales distinctæ a plumis frontis bene distinguendæ.*

CYANOCITTA.

Cyanocitta, Strickland, Ann. & Mag. N. H. xv. p. 261 (1845); Sharpe, Cat. B. Brit. Mus. iii. p. 106.

We now confine this generic name to the crested Jays of the northern continent, whereof *C. cristata* is the typical species. The distinctive characters of the members of this genus are not very pronounced, at least so far as regards *C. stelleri* and its allied forms—so much so that the authors of the 'History of North-American Birds' admit only two birds to rank as species, namely *C. cristata* and *C. stelleri.* It is with the latter alone we now have to deal. We recognize without much difficulty three forms of *C. stelleri* in Mexico, namely *C. macrolopha*, a northern species found at least as far south as the Mexican State of Durango, *C. diademata* of the central highlands, and *C. coronata* of the southern highlands, the last-named species spreading southwards through the highlands of Guatemala to Honduras. The range of the two latter in Mexico has not yet been satisfactorily determined.

Cyanocitta can be distinguished from *Aphelocoma* by its elongated crest, and by the wings being distinctly barred with black; these two genera have a common arrangement of the supranasal and frontal feathers.

1. Cyanocitta macrolopha.

Cyanocitta macrolopha, Baird, Pr. Ac. Phil. 1854, p. 118[1]; Sharpe, Cat. B. Brit. Mus. iii. p. 110[2].

Cyanura stelleri, var. *macrolopha,* Coues, B. N. W. p. 214; Baird, Brew., & Ridgw. N. Am. B. ii. p. 281[3].

Capite toto undique cum gutture et crista elongata nigris; gula cinerascente; fronte longitudinaliter sparsim albo striata; macula supra et infra oculos alba; dorso medio fuliginoso, imo cæruleo; alis nigris, extrorsum cæruleis, secundariis læte cyaneis, internis nigro striatis, tectricibus majoribus quoque nigro maculatis,

cauda cyanea nigro obsolete transvittata; subtus cærulea; tibiis et subalaribus nigricantibus; rostro et pedibus nigris. Long. tota 10·0, alæ 5·7, caudæ 5·0, rostri a rictu 1·4, tarsi 1·6. (Descr. maris ex Ciudad, Durango, Mexico. Mus. nostr.)

♀ mari similis.

Hab. North America, Central Rocky Mountains from Canada southwards.—Mexico, Ciudad in Durango (*Forrer*).

According to American authors this is a form of *Cyanocitta stelleri*, ranging through the central Rocky Mountains to New Mexico and Southern Arizona, and, as we now see, to the Sierra Madre in the State of Durango. From *C. stelleri* itself it may readily be distinguished by the white spots above and below the eye, and it is the only one of the northern forms that possesses this feature, though it is shared by both the species which follow. *C. macrolopha* is a resident species wherever it is found, living chiefly in the pine-woods, up to an elevation of about 10,000 feet. Mr. Ridgway found its nest in the Wahsatch Mountains in a small fir-tree on the edge of a wood; it was constructed of coarse strong sticks, rudely put together, and upon these a thick plastering of mud of uniform concave shape is added; the lining being of fine wiry roots. The eggs are of a light sea-green ground-colour, somewhat sparingly and finely spotted with olive-brown and lighter markings of violet or purple-brown.

2. **Cyanocitta diademata.**

Cyanogarrulus diadematus, Bp. Consp. Av. i. p. 377 [1].

Cyanocitta diademata, Scl. P. Z. S. 1860, p. 252 [2]; 1864, p. 175 [3].

Cyanocitta stelleri diademata, Perez, Pr. U. S. Nat. Mus. 1886, p. 152 [4].

Præcedenti similis, dorso medio cyaneo tincto, dorso imo et supracaudalibus intense cyaneis, forsan distinguenda.

Hab. Mexico, Zacatecas [1], valley of Mexico (*White* [3]), Hacienda de San Pedro, State of Puebla (*Perez* [4]), Orizaba (*Sallé* [2]).

Mr. Sharpe, in the third volume of his Catalogue of Birds, in treating of these Jays seems not to have appreciated the differences between *C. diademata* and *C. coronata*, for his description of the former is clearly based upon a specimen of the latter, as his reference to the colour of the crest shows, and from the notes appended to his account of the two birds it appears that he was of opinion that the blackness of the crest is probably a characteristic of the female or young bird. Under these circumstances we are unable to refer Mr. Sharpe's names to their proper place with any certainty. We use the names precisely in the sense of Bonaparte, and we think there can be no doubt whatever that the name *C. diademata* refers to the black-crested bird, and *C. coronata* of both Bonaparte and Swainson to that with the blue crest. That the colour of the crest is due to sex or age we do not believe, for with a familiar acquaintance with *C. coronata* in Guatemala we never met with a black-crested bird, and we have a young specimen before us in its first plumage in which the crest is distinctly blue. We have

not been able to trace the range of *C. diademata* very satisfactorily. It was described by Bonaparte from a specimen in the Darmstadt Museum from Zacatecas, and we have examples from the neighbourhood of the city of Mexico. Oaxaca birds all appear to belong to *C. coronata*, which, according to Sumichrast, is the form found in the State of Vera Cruz, and we have certainly no trace of *C. diademata* in Guatemala. It occurs, however, in the Mexican State of Puebla [4], which is probably its most southern limit. It doubtless spreads thence through the tablelands of Central Mexico, until its place is taken further north by *C. macrolopha*.

3. **Cyanocitta coronata.**

Garrulus coronatus, Sw. Phil. Mag. new ser. i. p. 437 [1]; Jard. & Selb. Ill. Orn. ii. t. 64 [2].

Cyanocorax coronatus, Bp. P. Z. S. 1837, pp. 109 [3], 115 [4]; Scl. P. Z. S. 1859, p. 365 [5].

Cyanogarrulus coronatus, Bp. Consp. Av. i. p. 377 [6].

Cyanocitta coronata, Scl. P. Z. S. 1858, pp. 302 [7], 359 [8]; Taylor, Ibis, 1860, p. 112 [9]; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 24 [10]; Dugès, La Nat. i. p. 139 [11].

Cyanurus coronatus, Scl. & Salv. Ibis, 1859, p. 22 [12]; Scl. P. Z. S. 1859, p. 381 [13]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554 [14].

Præcedenti similis, sed dorso, pectore et crista cæruleis haud difficile distinguenda.

Hab. Mexico [3 6], tableland (*Bullock* [1 2]), alpine region of Vera Cruz (*Sumichrast* [14]), Jalapa (*de Oca* [5]), La Parada (*Boucard* [7]), Cienguilla (*Sumichrast* [10]), Juquila (*Boucard* [13]); Guatemala (*Velasquez* [4]), Volcan de Fuego 6000 to 8000 feet, Barranco de los Chocoyos [12], Totonicapam, San Raymundo, Santa Barbara, Chilasco (*O. S. & F. D. G.*); Honduras, between Siguatepeque and Taulevi (*Taylor* [8 9]).

Swainson's type of this species * was said to have been procured by Bullock in the tablelands of Mexico, but no special locality is mentioned. Sumichrast speaks of it as a resident in the alpine region of Vera Cruz, where it reaches to the extreme limits of vegetation on the Volcano of Orizaba, confining itself to the forests of pines and oaks; he adds that it does not descend below an elevation of 4500 feet, and that it is never seen on the plains. In Guatemala it is an abundant species in the upland oak and pine forests lying at an elevation of from 5000 to 8000 feet, and it inhabits a higher zone than *Cyanolyca melanocyanea*, which for the most part takes its place at a lower level. *C. coronata* is usually found in small flocks of four or five individuals, which have the noisy habits common to the members of this section of the Corvidæ. Some Mexican specimens of this bird have the blue colour of the crest of a deeper tint than others, and for the most part the crest of Mexican examples is darker than that of Guatemalan birds; but it is always obviously blue, and so is the throat, and these points

* The actual type appears to be no longer extant, so that it cannot be referred to to decide the colour of the crest; but Swainson's description seems sufficiently explicit. It runs as follows:—"Crested; blue, sides of the head blackish; chin, front, and eyebrows whitish; wing covers and tertials banded with black lines; tail rounded."

sufficiently distinguish it from *C. diadematа*. One of these dark birds, formerly in Bullock's collection, is figured by Jardine and Selby [2]. The bird obtained by Mr. Taylor in Honduras, according to Mr. Sclater, agrees with Guatemalan examples [8].

APHELOCOMA.

Aphelocoma, Cabanis, Mus. Hein. i. p. 221 (1851); Sharpe, Cat. B. Brit. Mus. iii. p. 112.

This genus may be distinguished from *Cyanocitta* by the absence of an occipital crest, and the wings externally being destitute of black bands, but it agrees with that genus in the supranasal and frontal feathers; the limits of the genus here adopted are exactly those of Mr. Sharpe, though we divide it into three instead of two main sections. That in which the under surface of the body is greyish white is the only one which passes north beyond the limits of our region. In the United States this is represented over a considerable area including the south-western States, California, and the peninsula of Florida. As in the case of *Cyanocitta*, several of the forms are not very well defined; and it is a question whether the Mexican form of *A. californica* is not separable from the northern bird, though we have not so treated it here. We fully expect to find that another species of this section of the genus, *A. woodhousii*, will be found in Northern Mexico, as it occurs in the frontier States of New Mexico and Arizona. Each of the other sections of the genus include but a single species, one of which, *A. unicolor*, is common to the highlands of Southern Mexico and Guatemala; the other section contains *A. nana* only, a bird of very limited range in the highlands of Southern Mexico.

a. Corpus subtus sordide albidum.

1. Aphelocoma californica.

Garrulus californicus, Vig. in Beechey's Voy. Zool. p. 21, t. 5 [1].

Cyanocitta californica, Strickl. Ann. & Mag. N. H. xv. p. 342 [2]; Scl. P. Z. S. 1858, p. 302 [3]; 1859, p. 381 [4]; Scl. & Salv. P. Z. S. 1869, p. 362 [5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554 [6]; Baird, Brew., & Ridgw. N. Am. B. ii. p. 288 [7].

Aphelocoma californica et *A. sumichrasti*, Sharpe, Cat. B. Brit. Mus. iii. p. 113 [8].

Cyanocitta floridana, Scl P. Z. S. 1856, p. 300 [9].

Cyanocitta sumichrasti, Ridgw. N. Am. B. ii. p. 283 [10].

Cyanocitta californica, var. *sumichrasti*, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 24 [11].

Azurea; dorso medio et scapularibus fuscis; superciliis indistinctis albis; loris et regione parotica nigricantibus; subtus sordide alba; gula et pectore vix fusco striata; rostro et pedibus nigris. Long. tota 11·3, alæ 5·6, caudæ 5·8, rostri a rictu 1·3, tarsi 1·6. (Descr. maris ex Oaxaca, Mexico. Mus. nostr.)

Hab. North America, Pacific coast-region from the Columbia river southwards, Monterey [1].—Mexico (*Sallé* [8], *le Strange* [5]), alpine region of Vera Cruz (*Sumichrast* [6]), Cinco Señores [4], La Parada [3] (*Boucard*), Oaxaca [5] (*Boucard*, *Fenochio*), Nacaltepec (*Sumichrast* [11]).

The white superciliary mark is not quite so apparent in Mexican specimens of this

species as in Californian, and the size of the former slightly exceeds that of the latter. These differences induced Mr. Ridgway to separate the Mexican bird under the name of *Cyanocitta sumichrasti*, and Mr. Sharpe adopted this name. We have carefully examined specimens from both countries and have come to the conclusion that the differences are not sufficiently marked to render it desirable to make any nominal distinction between them. The superciliary streak is certainly evanescent, and a difference of size is the most unsatisfactory of differential characters.

The Californian Jay, as this bird is called in the United States, has a wide range along the Pacific coast-region of North America, being found as far north as the Columbia river; it thence passes southwards through Lower California to Cape St. Lucas. We have no record of its occurrence anywhere in Northern Mexico, and it is very probable that its place is there taken by *A. woodhousii*, which is the common resident bird of Arizona; future investigation can, however, alone clear up this point. In Southern Mexico it occurs in the alpine region according to Sumichrast, and where also Mr. le Strange obtained specimens; it also occurs in the State of Oaxaca, whence we have examples sent us by Mr. Fenochio, and where also Mr. Boucard obtained it.

A. woodhousii is closely allied to the present species, but may readily be distinguished by its darker under surface and its pale blue under tail-coverts as well as by other minor points. Should the range of *A. californica* be completely severed, and its place taken throughout the highlands of Northern Mexico by the allied form, it will be a fact of distribution of considerable interest. *A. californica* breeds abundantly throughout the western parts of California, and constructs a nest of roots and strong grass, and places it in a low tree or bush. The eggs are dark green, marked with numerous pale brown blotches and spots.

2. Aphelocoma ultramarina.

Garrulus ultramarinus, Bp. Journ. Ac. Phil. iv. p. 387 [1]; Temm. Pl. Col. p. 439 [2].
Cyanocitta ultramarina, Bp. Consp. Av. i. p. 378 [3]; Baird, Mex. Bound. Surv., Zool. ii. Birds, p. 21, t. 22. f. 2 [4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554 [5].
Cyanocorax ultramarinus, Scl. P. Z. S. 1857, p. 204 [6]; 1859, p. 365 [7].
Aphelocoma ultramarina, Sharpe, Cat. B. Brit. Mus. iii. p. 115 [8].
Pica sieberi, Wagl. Syn. Av. fol. 21, p. 12 [9]; Isis, 1829, p. 750 [10].
Cyanocitta sieberi, Bp. Consp. Av. i. p. 378 [11].
Garrulus sordidus, Sw. Phil. Mag. new ser. i. p. 437 [12]; Zool. Ill. ser. 2, ii. t. 86 [13].
Cyanocitta sordida, Baird, Mex. Bound. Surv., Zool. ii. p. 21, t. 22. f. 1 [14]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554 [15]; Dugès, La Nat. i. p. 139 [16].
Aphelocoma sordida, Sharpe, Cat. B. Brit. Mus. iii. p. 116 [17].
Corvus azureus, Licht. Preis-Verz. mex. Vög. p. 1 [18].
Cyanocitta couchi, Baird, B. N. Am. p. 588, t. 60. f. 2 [19].
Aphelocoma couchi, Sharpe, Cat. B. Brit. Mus. iii. p. 116 [20].
Cyanocitta ultramarina, var. *couchi*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 293 [21].

Azurea; dorso et interscapulio obscurioribus; loris nigricante-cæruleis; regione parotica quam pileus obscurior; subtus griseus; ventre imo et crisso albicantibus; tibiis griseis; rostro nigro nonnunquam flavo variegato; pedibus nigris. Long. tota 12·5, alæ 7·0, caudæ rect. med. 6·5, rect. lat. 5·6, rostri a rictu 1·4, tarsi 1·6. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico (*Deppe*), south side of the Rio Grande, Monterey (*Couch* [14]), Real del Monte (*Bullock*), Guanajuato (*Dugès*), near the city of Mexico (*le Strange*), plateau and alpine region of Vera Cruz (*Sumichrast* [5 15]), Jalapa (*Sallé*, *de Oca* [7]).

Some doubts hang around Bonaparte's name *Garrulus ultramarinus*, and neither the authors of the 'History of North American Birds' nor Mr. Sharpe give a very satisfactory account of it, and none of them seem to have examined a specimen exactly answering to Bonaparte's description. Neither have we; but we altogether doubt the existence of two distinct species of this form being found in Mexico proper, and we think it more than probable that the squareness of the tail of Bonaparte's type was due to the feathers being in a state of moult, or to the absence of the outer pair. At the same time we notice some variation in the graduation of the tail in the specimens before us; in one from Jalapa the difference in the length between the outermost and the middle feathers is nearly an inch. In Swainson's type of *A. sordida* it is a little more than three-quarters of an inch, whilst in one of Sallé's examples from Southern Mexico it is only half an inch. It is thus evident that the graduation of the tail is not a definite specific character. Thus the differences said to exist between *A. ultramarina* and *A. sordida* break down, and *A. ultramarina* remains as the oldest title of the species, having been bestowed upon it by Bonaparte in 1825, Swainson's name *A. sordida* and Wagler's *A. sieberi*, both based upon Bullock's specimens, dating from 1827.

Two forms of this bird have been separated by North-American writers, namely *A. couchi* from the Rio Grande valley, and *A. arizonæ* from Arizona; the latter of these seems to be the most distinct, but it has not yet been noticed within our boundary. *A. couchi* seems to differ chiefly in size and in having the dorsal region rather greyer. It occurs near Monterey and in Chihuahua and at Parras. In Southern Mexico *A. ultramarina* has a wide range throughout the plateau and alpine region, and it has been observed by most collectors who have worked in the upland country. Sumichrast places its range in altitude between 5000 and 11,000 feet above the level of the sea.

β. Unicolor, corpore subtus cum gula dorso concoloribus.

3. Aphelocoma unicolor.

Cyanocorax unicolor, DuBus, Bull. Ac. Brux. xiv. pt. 2, p. 103 [1]; Esq. Orn. t. 17 [2]; Scl. P. Z. S. 1857, p. 204 [3]; 1859, p. 365 [4]; Schl. Mus. P.-B. i. Coraces, p. 49 [5].

Cyanocitta unicolor, Bp. Consp. Av. i. p. 378 [6]; Scl. P. Z. S. 1864, p. 175 [7]; Salv. Ibis, 1866, p. 194 [8].

Aphelocoma unicolor, Sharpe, Cat. B. Brit. Mus. iii. p. 118 [9].
Cyanocorax concolor, Cass. Pr. Ac. Phil. 1848, pp. 26 [10], 90 [11].

Saturate azurea, unicolor, alis nigricantibus, extus dorsi colore limbatis, loris cæruleo-nigris, alis et cauda nigris. Long. tota 12·5, alæ 6·3, caudæ 6·4, rostri a rictu 1·5, tarsi 1·5. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. MEXICO [1 6 10], valley of Mexico (*White* [7]), Puebla (*Pease* [11]), Jalapa (*Sallé* [3], *de Oca* [4]).—GUATEMALA, Totonicapam, Quiche, Chilasco (*O. S. & F. D. G.* [8]).

This species appears to be somewhat locally distributed in the mountains of Southern Mexico. Mr. Pease states that it is common in the hills bordering on the plains of Puebla, at Pinal, and the mountains skirting the valley of Mexico, where it remains all the year [11]. Though included in both Sallé's and de Oca's collections made in the vicinity of Jalapa, no mention is made of this species by Sumichrast as an inhabitant of the State of Vera Cruz, which is somewhat strange, and leads us to suspect that some of the Jays at least of his list may have been incorrectly determined. In Guatemala *A. unicolor* is a very local species; we first met with it in the upland forests on the ridge which divides the plain of Salama from the valley of the Motagua, and again in the district of Chilasco which overhangs the valley of the Polochic, at elevations varying from 4000 to 6000 feet. We subsequently found it on the ridge between Quiche and Totonicapam, at elevations reaching as high as 10,000 feet. We are not aware that it ever occurs in collections made near Coban, and we saw no sign of it in the upland forests of the volcanos. *A. unicolor* in its habits resembles its congeners. It lives in pine-woods, associating in flocks of five or six individuals.

γ. *Corpus subtus cæruleum, gula cæruleo-albida.*

4. **Aphelocoma nana.**

Cyanocorax nanus, DuBus, Bull. Ac. Brux. xiv. pt. 2, p. 103 [1]; Scl. P. Z. S. 1857, p. 204 [2]; Scl. P. Z. S. 1859, p. 365 [3].
Cyanocitta nanus, Bp. Consp. Av. i. p. 378 [4]; Scl. P. Z. S. 1859, p. 381 [5]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554 [6].
Aphelocoma nana, Sharpe, Cat. B. Brit. Mus. iii. p. 118 [7].

Saturate azurea, subtus sordidior; alis et cauda extus concoloribus; pileo cyaneo tincto; fronte et superciliis indistinctis magis canescentibus; oculorum ambitu et capitis lateribus nigris; gula tota albida cæruleo vix tincta. Long. tota 8·1, alæ 4·1, caudæ 4·0, rostri a rictu 1·0, tarsi 1·2. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. MEXICO [1 4], alpine region of Vera Cruz (*Sumichrast* [6]), Jalapa (*Sallé* [2], *de Oca* [3]), Cordova [7], Llano Verde (*Boucard* [5]), near the city of Mexico (*Mus. nostr.*).

According to Sumichrast, this species is a native of the alpine region of Vera Cruz, that is to say, between 5000 and 11,500 feet above the sea, where it occurs with several other Jays, such as *Cyanocitta coronata*, but he gives no special account of its habits. Other collectors have also met with it in this portion of Mexico; but it would appear, from

the nearly total absence of any mention of it in other parts of the country, that it is restricted to very narrow limits, probably not extending beyond the slopes of the great volcanos.

b. *Plumæ nasales a plumis frontis haud distinctæ, hæ plus minusve projectæ aut erectæ.*

CYANOLYCA.

Cyanolyca, Cabanis, Mus. Hein. i. p. 223 (1850).
Xanthura, Sharpe, Cat. B. Brit. Mus. iii. p. 128 (partim).

In Mr. Sharpe's arrangement of the eight species we include under this generic name, four are placed in *Xanthura* and the rest in *Cyanocorax*; but we cannot help feeling that comparative measurements of tail, wings, &c., upon which Mr. Sharpe relies, have led him to associate birds by no means nearly allied, judging by their colours, and it seems to us that his section *b* of the genus *Xanthura* had best be separated and associated with his section *e'* of his genus *Cyanocorax*. This treatment brings together a group of birds which are not structurally dissimilar, and which more or less share the same colours in different combinations, and we have no such discordant element as *X. luxuosa*, in which the colours depart entirely from the rest.

The eight species we now include under this name fall naturally into several groups. *C. sanblasiana*, the type of the genus *Cissolopha* of Bonaparte, can readily be distinguished by its peculiar elongated frontal crest. *C. beecheyi* and *C. yucatanica* have yellow legs, and the colour of the bill differs in the sexes, moreover the female of *C. yucatanica* has white tips to the outer tail-feathers. The other species have no abnormal characters; but *C. ornata* has the frontal feathers more distinctly erect than in *C. melanocyanea*.

The type of the genus *Cyanolyca* of Cabanis is *C. armillata* from Colombia, a species not represented in our region by any near ally.

a. *Crista frontalis tenuis, valde elongata, nigra; venter omnino niger.*

1. Cyanolyca sanblasiana.

Geai de San Blas, Néboux, Rev. Zool. 1840, pp. 290, 323[1].
Pica sanblasiana, Lafr. Mag. Zool. 1842, Ois. t. 28[2].
Cissolopha sanblasiana, Bp. Consp. Av. i. p. 380[3]; Lawr. Mem. Bost. Soc. N. H. ii. p. 284[4].
Cyanocitta sanblasiana, Scl. & Salv. P. Z. S. 1876, p. 269[5].
Xanthura sanblasiana, Sharpe, Cat. B. Brit. Mus. iii. p. 132[6].
Cyanocorax de San Blas, Prév. et Desmurs, Voy. 'Venus,' v. p. 200[7].

Supra azurea, uropygio et cauda saturatioribus; alis magis viridescentibus; capite toto cum collo et corpore subtus nigerrimis; tibiis et crisso indigoticis; crista frontali elongata, nigra; rostro nigro, pedibus corylinis. Long. tota 12·0, alæ 5·2, caudæ 5·7, rostri a rictu 1·4, tarsi 1·5. (Descr. feminæ ex Colima, Mexico. Mus. nostr.)

Hab. Mexico[3], San Blas, Acapulco (*Néboux*[1 2]), plains of Colima, Manzanilla Bay, Los Trochos (*Xantus*[4]).

This Jay appears to be extremely local, and its range restricted to Western Mexico from San Blas to Acapulco, in both of which places specimens were obtained by the officers of the French exploring frigate the 'Venus.' The only examples we have seen to which a precise locality was attached are those obtained by Xantus in the State of Colima, one of which was kindly given us by the authorities of the Smithsonian Institution. The figure of this bird in the 'Magasin de Zoologie' represents the bill yellow; but perhaps this is a variable rather than a sexual character, as in our example, marked a female, the bill is black; the sex of the latter, however, may have been wrongly determined. In the allied species, *C. beecheyi* and *C. yucatanica*, the bill in the male is black, in the female yellow.

β. *Pedes flavi, rostrum in mari nigrum, in femina flavum; venter omnino niger.*

2. Cyanolyca beecheyi.

Pica beecheyi, Vig. Zool. Journ. iv. p. 353[1]; Zool. Beechey's Voy., Birds, p. 22, t. 6[2].

Cyanocorax beecheyi, Finsch, Abh. nat. Ver. zu Bremen, i. p. 333[3].

Cyanocitta beecheyi, Lawr. Mem. Bost. Soc. N. H. ii. p. 283[4]; Scl. & Salv. P. Z. S. 1876, p. 270[5].

Xanthura beecheyi, Sharpe, Cat. B. Brit. Mus. iii. p. 133[6].

Cyanocitta crassirostris, Bp. Consp. Av. i. p. 378[7].

Cyanocorax geoffroyi, Bp. Compt. Rend. xxxi. p. 564[8].

Læte purpurea; alis et cauda saturatioribus; capite toto cum collo et corpore subtus nigerrimis; rostro nigro, pedibus pallide corylinis. Long. tota 16·0, alæ 6·8, caudæ 7·7, rostri a rictu 1·8, tarsi 2·0. (Descr. maris ex Mazatlan, Mexico. Mus. nostr.)

♀ mari similis, sed rostro flavo distinguenda.

Hab. Mexico, Mazatlan (*Grayson*[3 4], *Bischoff*[4], *Forrer*), Tres Marias Is. (*Xantus*[4]), San Blas (*Mus. Paris*[5]).

Grayson, who was well acquainted with this bird, says that it is much more abundant in the State of Sinaloa than further south; he usually met with it among the low scrubby forests of the poorer lands of that State, to which it seems more partial than to the rank woods found in some parts of the country. Its food consists of grubs, beetles, and various kinds of insects, also many kinds of fruit; it is likewise very fond of meat and corn when to be had. The iris of the male, he says, is yellow, while that of the female is grey.

The types described by Vigors were obtained during Beechey's voyage, and figured in the volume describing the expedition; but these specimens seem to have been lost, as they are not extant in the British Museum. It was subsequently obtained by the officers of the French frigate 'Venus,' who visited this portion of the Mexican coast; one of these examples, from Mazatlan, Bonaparte described under the name of *Cyanocorax geoffroyi*, the type so marked being now in the Paris Museum. This species also occurs on the Tres Marias Islands, where Xantus found it, but where neither Grayson nor Forrer met with it.

3. **Cyanolyca yucatanica.** (*Cyanocitta yucatanica*, Tab. XXXV.)

Cyanocitta yucatanica, Dubois, Bull. Ac. Brux. ser. 2, xl. p. 797[1]; Boucard, P. Z. S. 1883, p. 446[2].
Xanthura yucatanica, Sharpe, Cat. B. Brit. Mus. iii. p. 133[3].
Corvus (*Pica*) *beecheii*, Eyd. & Gerv. Mag. Zool. 1836, cl. ii. t. 72[4]; Voy. 'Favorite,' t. 20[5].
Cyanocitta beecheii, Bp. Consp. Av. i. p. 378[6].
Cyanocitta crassirostris, Puch. Rev. Zool. 1858, p. 196[7]; Moore, P. Z. S. 1859, p. 57[8]; Salv. Ibis, 1861, p. 353[9]; Lawr. Ann. Lyc. N. Y. ix. p. 201[10].
Cyanocitta germana, Scl. & Salv. P. Z. S. 1876, p. 270[11].

Viridescente-azurea; uropygio et cauda supra cyanescentioribus; capite toto cum cervice et corpore subtus nigerrimis; rostro nigro, pedibus carneis. Long. tota 12·5, alæ 5·4, caudæ 6·5, rostri a rictu 1·4, tarsi 1·4.
♀ mari similis, sed rostro flavo et cauda rectricibus utrinque quatuor externis albo terminatis. (Descr. maris et feminæ ex Meco Ins. Yucatan. Mus. nostr.)

Hab. MEXICO, Yucatan (*Schott*[10], *Gaumer*[2], *Cabot*), Meco I. and Mugeres I., Yucatan (*Gaumer*); BRITISH HONDURAS (*Dyson*[2]), Old River (*Leyland*[3 7], *O. S.*); GUATEMALA, near Lake Yaxha (*O. S.*).

This bird for a long time passed under the name of *Cyanocitta crassirostris* of Bonaparte, but it has been proved that this title really belongs to *C. beecheyi* of Western Mexico; the discovery was made nearly at the same time by Dubois and by Sclater and Salvin, both of whom proposed names for the present species, that of Dubois having a slight priority.

C. yucatanica, under which name this Jay now stands, is a fairly isolated species, no other member of the family having the sexes so markedly different, though *C. beecheyi* has the same sexual differences in the colouring of the bill. Its range is very restricted, being practically confined to the promontory of Yucatan and those portions of Guatemala and British Honduras immediately joining; it is also found on Meco and Mugeres Islands, off the extreme north-eastern coast. Mr. Gaumer speaks of it as exceedingly abundant in Northern Yucatan, and often very destructive in cornfields and amongst fruit; he adds, that from twenty to one hundred individuals associate in flocks, which, on being approached, utter loud cries. On his journey from Peten to the coast down the Belize river, Salvin not unfrequently met with this Jay, chiefly in logwood scrubs, such as abound about the lake of Yaxha; here, too, they were seen associated in flocks, though not so large as Mr. Gaumer speaks of.

γ. *Caput totum nigrum, venter cyaneus.*

4. **Cyanolyca melanocyanea.**

Garrulus (*Cyanocorax*) *melanocyaneus*, Hartl. Rev. Zool. 1844, p. 215[1].
Cyanolyca melanocyanea, Cab. Mus. Hein. i. p. 223[2].
Cyanocitta melanocyanea, Bp. Consp. Av. i. p. 378[3]; Scl. & Salv. Ibis, 1859, p. 21, t. 5. f. 6[4]; R. Owen, Ibis, 1861, p. 63[5]; Scl. Ibis, 1873, p. 373[6].

Cyanocorax melanocyaneus, Scl. P. Z. S. 1858, p. 359[7]; Taylor, Ibis, 1860, p. 112[8]; Schl. Mus. P.-B. i. Coraces, p. 45[9].

Xanthura melanocyanea, Sharpe, Cat. B. Brit. Mus. iii. p. 134, t. 6[10].

Viridi-azurea; uropygio et cauda saturatioribus; capite toto cum collo et corpore subtus usque ad ventris medium nigerrimis; corporis subtus reliquo cyanescente; rostro nigro, pedibus obscure corylinis. Long. tota 12·0, alæ 5·5, caudæ 6·5, rostri a rictu 1·4, tarsi 1·6. (Descr. maris ex San Gerónimo, Guatemala. Mus. nostr.)

Hab. Guatemala [1 3], Dueñas (*O. S.*[4]), Volcan de Fuego up to 8000 feet, Santa Maria below Quezaltenango, San Gerónimo, Tactic, Coban (*O. S. & F. D. G.*), San Gerónimo (*R. Owen*[5]); Honduras, between Siguatepeque and Taulevi (*Taylor*[7 8]); Nicaragua, Chontales (*Belt*[6]).

This Jay is a characteristic bird throughout the lower portions of the Guatemalan highlands, being found as low as the plain of Salama, and occasionally, but very rarely, as high as 8000 feet in the volcanos: it is, however, very seldom seen at so great an altitude, the Jays of that region being *Cyanocitta coronata* and *Cyanolyca pumilo*. Near Dueñas, at an altitude of about 5000 feet, it is the only species of Jay; it is here resident all the year in the wooded parts, breeding in the months of April and May. It makes a loose nest of small twigs, which is placed in a thick bush about six feet from the ground; the eggs are usually four in number, and are of a brick-red colour, spotted and blotched with a darker shade of the same[4]. In Honduras Mr. Taylor only found this species on the elevated plain between Siguatepeque and Taulevi, where, however, they were tolerably common. In Nicaragua we only know of its occurrence from a single specimen obtained by Mr. Belt[6]; this is darker, as regards the blue colour, than any Guatemalan specimen we have, but does not differ in other respects; moreover, Guatemalan specimens differ somewhat in this point.

δ. *Vertex posticus et nucha albo-cærulea.*

5. Cyanolyca ornata.

Pica ornata, Less. Rev. Zool. 1839, p. 41[1].

Cyanocoraæ ornatus, Cass. Pr. Ac. Phil. 1848, p. 89[2]; Scl. P. Z. S. 1857, p. 204[3]; 1859, p. 365[4]; Sharpe, Cat. B. Brit. Mus. iii. p. 127[5]; Perez, Pr. U. S. Nat. Mus. viii. p. 153[6].

Cyanocitta ornata, Bp. Consp. Av. i. p. 379[7]; Scl. & Salv. Ibis, 1859, p. 21[8]; Scl. P. Z. S. 1859, p. 381[9]; 1864, p. 175[10]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554[11].

Saturate cyanea; alis et cauda extus dorso imo concoloribus; dorso medio purpureo tincto; capite toto cum collo undique nigris; pilei dimidio postico et nucha argenteo-cæruleis extrorsum albo distincte limbatis; rostro et pedibus nigris. Long. tota 12·5, alæ 5·5, caudæ 6·3, rostri a rictu 1·3, tarsi 1·1. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico [1 6] (*Pease*[2]), valley of Mexico (*White*[10]), temperate region of Vera Cruz (*Sumichrast*[11]), Jalapa (*Sallé*[3], *de Oca*[4], *Perez*[6]), Teotalcingo (*Boucard*[9]); Guatemala, Cahabon (*Skinner*[8]), Coban (*O. S. & F. D. G.*).

This species is restricted to Southern Mexico and Guatemala. Sumichrast says that it is found in the temperate region of Vera Cruz, where it prefers the pine-woods rather than the denser forests that cover the more elevated portions of that region; it occurs also in the State of Puebla. In Guatemala, so far as we know, it only occurs in Alta Vera Paz, in the neighbourhood of Coban, and the country lying in the direction of Cahabon. It is one of the birds frequently met with in collections from that district. In the original catalogue of the birds of Guatemala it is stated to occur in Honduras [8], but on what authority we are now unable to say. The bird found in Costa Rica, as will be seen below, is slightly different.

6. **Cyanolyca cucullata.**

Cyanocorax cucullatus, Ridgw. Pr. U. S. Nat. Mus. viii. p. 23 [1].

Cyanocitta ornata, Salv. Ibis, 1870, p. 114 [2].

Præcedenti persimilis, sed paullo minor, plaga capitali cærulea haud albo marginata, ut videtur, distinguenda.

Hab. Costa Rica (*Carmiol* [2]), Rio Sucio, Navarro (*Zeledon* [1]), Panama, Veragua (Arcé) See corrigenda

We have long possessed specimens of this bird both from Costa Rica and from the State of Panama, but we hesitated to describe this southern form of *C. ornata* as a distinct species, the differential characters being so slight, and Mr. Sharpe treated them in the same way. Mr. Ridgway, however, has recently separated the Costa-Rican bird as *C. cucullatus* [1], giving characters which we are able to recognize; we therefore employ his name. The first Costa-Rican specimen that came under our notice was obtained by Carmiol in 1869, and this bird was referred to *Cyanocitta ornata* [2]; our examples from the State of Panama were acquired at a later date. The examples described by Mr. Ridgway were collected in Costa Rica by J. Cooper, and were obtained on the Atlantic slope of the mountains—at Rio Sucio at an altitude of 800 feet above the sea, and at Navarro, at an altitude of 3500 feet. The specimens from the State of Panama were doubtless obtained from the western or Pacific side.

ε. *Vertex cæruleus, linea sincipitali alba.*

7. **Cyanolyca pumilo.**

Cyanocorax nanus?, Strickl. Contr. Orn. 1849, p. 122, t. 33 [1].

Cyanocorax pumilo, Strickl. Contr. Orn. 1849, p. 122, t. 33 [2]; Sharpe, Cat. B. Brit. Mus. iii. p. 127 [3].

Cyanocitta pumilo, Bp. Consp. Av. i. p. 378 [4]; Scl. & Salv. Ibis, 1859, p. 21 [5]; Salv. Cat. Strickl. Coll. p. 292 [6].

Saturate azurea; alis extus et cauda dorso concoloribus; capite summo et cervice undique cyanescentibus; gula nigra; fronte et capitis lateribus quoque nigris, ad pileum stricte albo marginatis; rostro et pedibus nigris. Long. tota 10·0, alæ 4·6, caudæ 5·0, rostri a rictu 0·7, tarsi 0·8. (Descr. maris ex Volcan de Fuego, Guatemala. Mus. nostr.)

Av. juv. lineola capitis alba caret.

Hab. Guatemala [4] (*Constancia* [1 2 5]), Calderas, Volcan de Fuego, Sierra de las Nubes, San Pedro Carcha (*O. S. & F. D. G.*).

C. pumilo is a very local species in Guatemala, and it was only in the forests of the Volcan de Fuego, lying at an elevation of 7000 to 8000 feet, that we found it in any numbers: here it frequented the oak-forests in small flocks of five or six individuals, its habits resembling those of its congeners. We never saw it in a living state in the department of Vera Paz; but in a collection made near San Pedro Carcha we noticed a specimen, and there is an example in the British Museum said to have come from Coban.

The exact origin of Sıtrckland's type has not been recorded; but as it was sent him by Constancia, who lived in Antigua, it was probably obtained in the vicinity of that town, very likely on the volcano itself.

8. **Cyanolyca argentigula.** (*Cyanocitta argentigula*, Tab. XXXIV.)

Cyanocitta argentigula, Lawr. Ann. Lyc. N. Y. xi. p. 88[1].

Cyanocorax argentigula, Scl. & Salv. P. Z. S. 1876, p. 268[2]; Sharpe, Cat. B. Brit. Mus. iii. p. 128[3].

♀ capite cum cervice nigris; gutture medio et superciliis elongatis (in medio occipitis junctis) cærulescente-albis; corpore reliquo cyanescente-nigro; alis et cauda extus cyaneis; rostro et pedibus nigris. Long. tota 10·5, alæ 4·7, caudæ 5·2, tarsi 1·4, rostri a rictu 1·25. (Descr. exempl. typ. ex Talamanca, Costa Rica, U. S. Nat. Mus.)

Hab. Costa Rica (*Boucard*), Talamanca (*J. Cooper* [1]).

Our description and figure of this beautiful species were taken from the typical specimen described by Mr. Lawrence, which was kindly lent us by the authorities of the United-States National Museum. We have no example of it ourselves, and the only other one we are acquainted with is in the possession of M. Boucard. Mr. Lawrence, in his description, compares it with *C. ornata*, *C. nana*, and *C. pumilo*, but we are inclined to think that *C. pumilo* is perhaps its nearest ally; there can be no doubt, however, but that the species is a very isolated one. The type was obtained during Professor Gabb's expedition to the district of Talamanca, Costa Rica, a little-frequented portion of that country lying on the eastern face of the cordillera.

XANTHURA.

Xanthura, Bonaparte, Consp. Av. i. p. 380 (1850); Sharpe, Cat. B. Brit. Mus. iii. p. 128 (sect. *a*).

We restrict this generic name to the group of Jays in which green and yellow are the predominating colours, which thus forms a natural group containing four fairly marked species. The one having the widest range as well as being most distinct in its characters is *X. incas*, a species known to Buffon. This bird is found on the slopes of the Andes, from Bolivia to Western Colombia; a second species is found in the interior of Colombia; a third in Venezuela; the fourth is that of our country, which spreads from the valley of the Rio Grande to Honduras. Curiously enough no member of this group of Jays is found in the southern section of our country. In the formation

of the frontal feathers and in having a large blue malar spot on either side of the jaw, *Xanthura* approaches *Cyanocorax*, but its slender form and distinct coloration indicate its distinctness; the tail, moreover, is more rounded than in *Cyanocorax*.

1. **Xanthura luxuosa.**

Garrulus luxuosus, Less. Rev. Zool. 1839, p. 100[1].

Xanthoura luxuosa, Bp. Consp. Av. i. p. 380[2]; Baird, Mex. Bound. Surv., Zool. ii. Birds, p. 21[3]; Dresser, Ibis, 1865, p. 495[4]; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554[5]; Lawr. Mem. Bost. Soc. N. H. ii. p. 285[6]; Merrill, Pr. U. S. Nat. Mus. p. 136[7]; Sennett, Bull. U. S. Geol. Surv. iv. p. 29, & v. p. 400[8]; Sharpe, Cat. B. Brit. Mus. iii. p. 132[9]; Scl. Ibis, 1879, p. 87[10].

Cyanocorax luxuosus, DuBus, Esq. Orn. t. 18[11]; Scl. P. Z. S. 1856, p. 300[12]; 1859, p. 365[13]; 1864, p. 175[14]; Lawr. Ann. Lyc. N. Y. ix. p. 201[15].

Cyanocitta luxuosa, Dugès, La Nat. i. p. 139[16].

Xanthoura incas, var. *luxuosa,* Baird, Brew., & Ridgw. N. Am. B. ii. p. 295[17]; Merrill, Bull. Nutt. Orn. Club, i. p. 89[18].

Cyanocorax peruvianus, Cass. Pr. Ac. Phil. 1848, p. 89[19].

Corvus peruvianus, Licht. Preis-Verz. mex. Vög. p. 1[20].

Xanthoura guatemalensis, Bp. Consp. Av. i. p. 380[21] ??

Cyanocorax guatemalensis, Scl. & Salv. Ibis, 1859, p. 22[22]; P. Z. S. 1870, p. 837[23]; Moore, P. Z. S. 1859, p. 57[24]; Taylor, Ibis, 1860, p. 113[25].

Xanthura guatemalensis, Lawr. Bull. U. S. Nat. Mus. no. 4, p. 25[26].

Xanthoura incas, var. *guatemalensis,* Baird, Brew., & Ridgw. N. Am. B. ii. p. 295[27].

Cyanocorax cyanocapillus, Cab. in Tsch. Faun. Per., Aves, p. 233[28].

Xanthura cyanocapilla, Sharpe, Cat. B. Brit. Mus. iii. p. 131[29].

Xanthoura incas, β. cyanocapilla, Dubois, Bull. Ac. Belg. xxxviii. p. 493[30].

Viridis; caudæ rectricibus quatuor intermediis obscurioribus et cyaneo tinctis, quatuor utrinque externis flavis; capite summo læte cyaneo; stria postfrontali transversa albida; macula malari triangulari magna cyanea alteraque supra oculos ejusdem coloris; loris, oculorum ambitu et regione parotica et gutture toto nigris; corpore subtus reliquo flavo viridi plus minusve lavato; rostro nigro, pedibus corylinis. Long. tota 10·7, alæ 4·5, caudæ 5·3, rostri a rictu 1·2, tarsi 1·5. (Descr. maris ex Cordova, Mexico. Mus. nostr.)

Hab. North America, Texas[4 7 8], valley of the Rio Grande[17].—Mexico[1 2 20], San Diego in Nuevo Leon (*Couch*[3]), Sierra Madre (*Xantus*[6]), Guanajuato (*Dugès*[16]), valley of Mexico (*White*[14]), Perote, Puebla (*Pease*[19]), hot and temperate region of Vera Cruz (*Sumichrast*[5]), Cordova (*Sallé*[12]), Jalapa[28] (*de Oca*[13]), Cacoprieto, Santa Efigenia[26] (*Sumichrast*), Merida in Yucatan (*Schott*[1], *Gaumer*); British Honduras, Belize (*Blancaneaux*); Guatemala[21], Cahabon (*Skinner*[22]), Yzabal, Choctum, Zapote, Savana Grande, Rio Chiguati, Patio Bolas, Retalhuleu (*O. S. & F. D. G.*); Honduras (*Taylor*[25]), Omoa (*Leyland*[24]), San Pedro (*G. M. Whitely*[23]).

We entirely subscribe to Mr. Sclater's views as to the subdivision of *Xanthura incas* and its allies published in his "Note on the American Crows of the subgenus *Xanthura*,"

and we altogether fail to appreciate the differences sought to be made between Mexican and Guatemalan examples of *X. luxuosa*; the only point that seems necessary to refer to as regards the variation of the species within our region is that birds from Northern Yucatan have the under surface rather purer yellow than those from other parts of Mexico and Guatemala; in this respect they approach the Venezuelan form *X. cæruleocephala*, in which the green shade is wholly absent.

Xanthura luxuosa is a well-known bird in the Rio Grande valley, occurring both on the Texan and on the Mexican side of the river; all collectors who have worked in this district have noted its presence. Dr. Merrill and Mr. Sennett found it breeding about Lomita and other places in Texas: the nest is described as built of twigs and rootlets, but so thin that the eggs could be seen from beneath; it is not easily found, for it is always concealed in thickets or in the heavy undergrowths of dense woods. The ground-colour of the eggs is usually drab, faintly tinged with green, distinctly spotted, speckled, or streaked with brown markings, chiefly at the larger end; occasionally, however, the spots are indistinct and clouded. In Southern Mexico *X. luxuosa* is a well-known bird on the eastern side of the cordillera; in the State of Vera Cruz, Sumichrast says, it is one of the most generally diffused species throughout the Department in the hot and temperate regions, even as high as 6500 feet above the sea. Pease found it in the State of Puebla; but it seems absent from all the western slope of the mountains and from the State of Oaxaca until we come to the Isthmus of Tehuantepec, where Sumichrast found it in numbers. In Northern Yucatan Mr. Gaumer says that it is abundant near the city of Merida, and all towns and villages, being seldom seen in the forests, though frequently along the roadsides; it is a bird, though common, but little known to the people of Yucatan, due probably to its resorting to those trees having green foliage like the colour of its plumage. In Guatemala it is a familiar bird in the forest regions on both sides of the cordillera up to an elevation of about 3000 feet, and it seems equally abundant in the lowlands lying to the northward of Coban as throughout the whole country bordering the Pacific. Its habits are much like those of other Jays, and it frequents the roadsides and the edges of clearings rather than the dense forests. Southward of Guatemala it has been recorded only from Honduras, and it is a remarkable fact that at present we have no record of any species of this form from any portion of the southern section of our country; it appears to be entirely absent from Costa Rica and the State of Panama. Immediately we enter South America we find the true *X. incas* occurs in the Cauca valley of Colombia, and in Venezuela the exceedingly closely allied *X. cæruleocapilla* is found.

CYANOCORAX.

Cyanocorax, Boie, Isis, 1826, p. 975; Sharpe, Cat. B. Brit. Mus. iii. p. 119.

Cyanocorax, after separating *Cyanolyca ornata* and its allies, contains, according to Mr. Sharpe, thirteen species, divisible into two sections—one having all the tail-feathers tipped with white, the others not so marked. The only species found in our region belongs to the former section, which contains eight nominal species, two or three of which are perhaps of doubtful value. The frontal feathers of *C. affinis* are directed forwards and upwards so as to form an upright crest, the supranasal feathers just covering the nostrils. The bill is short, but stout and strong; the wings are short, the primaries barely exceeding the secondaries in length.

The range of the genus extends over a large portion of Tropical South America from the basin on the La Plata northwards; it penetrates our region as far north as Costa Rica.

1. **Cyanocorax affinis.**

Cyanocorax affinis, Pelz. Sitz. Ak. Wien, xx. p. 164[1]; Scl. & Salv. P. Z. S. 1864, p. 354[2]; 1879, p. 510[3]; Salv. P. Z. S. 1870, p. 191[4]; Salv. & Godm. Ibis, 1879, p. 201[5]; Sharpe, Cat. B. Brit. Mus. iii. p. 121[6]; Zeledon, Cat. Av. de Costa Rica, p. 10[7].

Cyanocorax pileatus, Cassin, Pr. Ac. Phil. 1860, p. 138[8].

Uroleuca pileata, Lawr. Ann. Lyc. N. Y. vii. p. 296[9].

Supra purpurascente-brunneus; nucha, uropygio et cauda læte purpurascentioribus, hujus rectricibus omnibus lactescente albo terminatis; capite toto cum gutture nigris; plaga malari maculisque duabus, una supra, altera infra oculos cyaneis; corpore subtus reliquo cum tibiis et subalaribus lactescente-albis; rostro et pedibus nigris. Long. tota 13·5, alæ 6·2, caudæ 7·0, rostri a rictu 1·4, tarsi 2·0. (Descr. exempl. ex Chepo, Panama. Mus. nostr.)

Hab. Costa Rica (*Zeledon*[7]); Panama, Bugaba, Calobre (*Arcé*[4]), line of railway (*M'Leannan*[2 9]), Chepo (*Arcé*[6]), R. Truando and Nercua (*Wood*[8]).—Colombia[1 3 5].

Cyanocorax affinis is a Colombian species, whose range embraces the State of Panama, as we have specimens from as far north as the district of Chiriqui. Mr. Zeledon includes it in his list of Costa-Rican birds. M'Leannan found it not uncommon on the line of the Panama railway; and Cassin records it under the name of *Cyanocorax pileatus* from the rivers Truando and Nercua on the Isthmus of Darien, where Mr. Wood observed it in flocks on high trees near the base of the mountains; he adds that they are very shy and noisy birds, calling out loudly whenever an attempt was made to approach them. Salmon found the nest and eggs of this bird in the Cauca valley in Colombia; the former is composed of sticks, and all he saw were placed with considerable skill in situations difficult to find, generally a good way out on a branch. He adds that, though a noisy bird at all other times, it is usually quiet when near its nest. The eggs are clay-brown, thickly spotted, especially at the larger end, with spots of several shades of yellowish brown.

PSILORHINUS.

Psilorhinus, Rüppell, Mus. Senckenb. p. 188 (1837) ; Sharpe, Cat. B. Brit. Mus. iii. p. 139.

Psilorhinus is usually placed amongst the genera in which the nostrils are completely exposed, and we have seen specimens in this condition ; in others the supranasal feathers thinly cover the nostrils, and the arrangement of the feathers of this portion of the head is but a slight modification of that of *Cyanocorax* ; there is also an indication of a malar spot which points to a similar affinity. *Psilorhinus* nevertheless is a fairly definite genus, having a much stronger bill than any of the American Garrulinæ. The wings too are longer than in *Cyanocorax*, the primaries exceeding the secondaries by nearly an inch and a half.

Psilorhinus is peculiar to our region, and is represented by two species—one of which spreads from the Rio Grande to Costa Rica, the other occupies an, at present, ill-defined area in Mexico.

1. Psilorhinus morio.

Pica morio, Wagl. Isis, 1829, p. 751[1] ; 1831, p. 527[2].
Corvus morio, Licht. Preis-Verz. mex. Vög. p. 1 ; J. f. Orn. 1863, p. 56[3].
Corvus morio, Eyd. & Gerv. Voy. 'Favorite,' Zool. p. 54[4].
Psilorhinus morio, Bp. Consp. Av. i. p. 381[5] ; Scl. P. Z. S. 1856, p. 300[6] ; 1859, p. 365[7] ; Scl. & Salv. P. Z. S. 1869, p. 363[8] ; Sumichrast, Mem. Bost. Soc. N. H. i. p. 554[9] ; Baird, Brew., & Ridgw. N. Am. B. ii. p. 304[10] ; Lawr. Bull. U. S. Nat. Mus. no. 4, p. 25[11] ; Sharpe, Cat. B. Brit. Mus. iii. p. 139[12] ; Perez, Pr. U. S. Nat. Mus. viii. p. 153[13].
Pica fuliginosa, Less. Traité d'Orn. p. 333[14].

Brunneus ; alis et cauda vix dilutioribus ; capite undique cum gutture toto saturatioribus ; corpore subtus reliquo pallide brunneo ; rostro nigro, interdum flavo variegato, pedibus nigris. Long. tota 15·8, alæ 8·0, caudæ rect. med. 8·0, rect. lat. 6·3, rostri a rictu 1·6, tarsi 1·9. (Descr. exempl. ex Jalapa, Mexico. Mus. nostr.)

Hab. Mexico[2 3 5], Rio Grande valley[12], Boquillo and China in Nuevo Leon (*Couch*[10]), city of Mexico (*le Strange*[8]), State of Vera Cruz (*Sumichrast*[9]), Cordova (*Sallé*[6]), Jalapa (*de Oca*[7], *Perez*[13]), Mirador[10], Plan del Rio (*Perez*[13]), Guichicovi (*Sumichrast*[11]).

The differences between this bird and *P. mexicanus* are obvious enough at first sight, the white tips to all but the central feathers of the tail in the latter bird being a conspicuous character ; but their range is hardly what would be expected, both forms being found in the same districts of Mexico, as at Mirador and elsewhere.

But *P. morio* is a purely Mexican bird, and is confined to the hot and temperate regions. According to Sumichrast, it inhabits the greater portion of the State of Vera Cruz up to an elevation of about 5000 feet[9]. Its habits are described as gregarious and extremely noisy ; it frequents the forests of high trees. Nothing has been recorded of its nesting-habits which can be relied upon ; but Sumichrast says that he was assured

that it never makes a nest of its own, but invariably lays its eggs in those belonging to other birds.

2. Psilorhinus mexicanus.

Psilorhinus mexicanus, Rüpp. Mus. Senck. ii. p. 189, t. 11. f. 2 [1]; Scl. & Salv. P. Z. S. 1869, p. 363 [2]; 1870, p. 837 [3]; Sharpe, Cat. B. Brit. Mus. iii. p. 140 [4]; Boucard, P. Z. S. 1883, p. 447 [5].

Corvus morio, Wagl. Isis, 1829, p. 751 [6].

Psilorhinus morio, Baird, Mex. Bound. Surv., Zool. ii. Birds, p. 21 [7]; Moore, P. Z. S. 1859, p. 57 [8]; Scl. & Salv. Ibis, 1859, p. 22 [9]; Taylor, Ibis, 1860, p. 113 [10]; Cab. J. f. Orn. 1861, p. 83 [11]; Lawr. Ann. Lyc. N. Y. ix. p. 104 [12]; Frantz, J. f. Orn. 1869, p. 3 ; Baird, Brew., & Ridgw. N. Am. B. ii. p. 304 (partim) [14].

Corvus vociferus, Cabot, Pr. Bost. Soc. N. H. i. p. 155 [15].

Psilorhinus cyanogenys, Sharpe, Cat. B. Brit. Mus. iii. p. 140, t. 9 [16].

Præcedenti similis, sed corpore subtus a pectore usque ad crissum albidis, caudæ quoque rectricibus omnibus, præter duas medias, albo late terminatis. Long. tota 16·0, alæ 7·9, caudæ rect. med. 7·8, rect. lat. 5·3, rostri a rictu 1·7, tarsi 1·9. (Descr. exempl. ex Choctum, Guatemala. Mus. nostr.)

Hab. Mexico [5], Tamaulipas (*fide Rüppell* [1]), Boquillo and China in Nuevo Leon (*Couch* [7]), Mirador [14], Northern Yucatan (*Gaumer*); British Honduras, Belize (*Leyland* [6]); Guatemala, Yzabal, Quirigua [9], Iguana [9], Teleman, Choctum (*O. S. & F. D. G.*); Honduras, Taulevi (*Taylor* [10]), Omoa (*Leyland* [8]), San Pedro (*G. M. Whitely* [3]); Nicaragua, Pearl Cay Lagoon (*Wickham* [16]); Costa Rica [11], Turrialba [12], Potrero Cerrado [13], Nicoya [13] (*v. Frantzius*).

Psilorhinus mexicanus was described by Rüppell from a specimen said to have been obtained in the State of Tamaulipas, and it appears that similar birds were met with by Lieut. Couch in the State of Nuevo Leon, and others at Mirador and in other parts of Mexico. It occurs also in Northern Yucatan, where Mr. Gaumer says that it is very common in the great forests, but is shy, living in flocks of twenty or more.

In Guatemala we met with it in abundance in the lower heavily-forested portions of the Motagua valley, and also in that of the Polochic, both at Yzabal and Teleman, and can confirm the description of its habits given by other writers, both as to its associating in flocks and as to its extreme noisiness.

Both Leyland and Mr. Taylor speak of it as common in Honduras, but neither of them brought home specimens. Mr. Wickham's example, which formed the type of *P. cyanogenys*, was obtained on the shores of the Pearl Cay Lagoon, on the Mosquito coast of Nicaragua. South of Nicaragua its range includes the Pacific side of the continent, being found in Costa Rica, on the shores of the Gulf of Nicoya, as well as on the eastern slope of the mountains.

Regarding *P. cyanogenys* of Sharpe, we have little hesitation in placing it here; the plumage of the type in the British Museum is in exceedingly faded and worn condition, and this has brought into prominence the malar spots, which are always present in

Psilorhinus, but scarcely visible in freshly-moulted birds. The figure does not give the idea of the state of the specimen from which it was drawn, but doubtless represents an artistic restoration of the same; but the spots near the eye and the base of the lower jaw should have been made brown and not blue, and then we should have had an excellent figure of the normal *P. mexicanus*.

B. *Nares apertæ, plumis haud obtectæ.*

CALOCITTA.

Calocitta, Gray, List Gen. B. 1841, p. 50; Sharpe, Cat. B. Brit. Mus. iii. p. 88.

This genus is the only one of the American Jays which has a completely open nostril, uncovered with bristly feathers; it is further characterized by its long occipital crest composed of slightly recurved feathers, and by its long cuneate tail. Like *Psilorhinus*, *Calocitta* is restricted to our region—*C. colliei* being found in a very limited district in Western Mexico; while *C. formosa* is spread from Colima southwards to Costa Rica, and is found chiefly, but not exclusively, on the Pacific side of the cordillera.

1. Calocitta colliei.

Pica colliei, Vig. in Zool. Beechey's Voy. p. 22, t. 7 [1].
Cyanurus colliei, Bp. Consp. Av. i. p. 381 [2]; Dugès, La Nat. i. p. 139 [3].
Calocitta colliei, Finsch, Abh. nat. Ver. z. Bremen, i. p. 334 [4]; Lawr. Mem. Bost. Soc. N. H. ii. p. 284 [5]; Sharpe, Cat. B. Brit. Mus. iii. p. 89 [6].
Pica bernettii, Gray in Griff. ed. Cuv. An. Kingd., Aves, ii. p. 334, t. [7].
Calocitta elegans, Finsch, Abh. nat. Ver. z. Bremen, i. p. 335 [8].
Pica bullocki, Aud. B. Am. iv. p. 105, t. 227 [9].

Azurea; cauda cyanescentiore; fronte et crista elongata nigris, hujus plumis cæruleo terminatis; capitis lateribus et gutture toto nigris; macula supra oculos altera malari ad oculos extendente cæruleo-albis; corpore subtus reliquo albo; cauda valde elongata, rectricibus quatuor utrinque late albo terminatis; rostro et pedibus nigris. Long. tota 26·0, alæ 7·9, caudæ rect. med. 18·0, rect. lat. 5·0, rostri a rictu 1·7, tarsi 1·7. (Descr. maris ex Mazatlan, Mexico. Mus. nostr.)

♀ aut, ut dicitur, *av. juv.* plumis frontis et cristæ elongatis albo terminatis.

Hab. Mexico [1 2], Mazatlan (*Grayson* [4 5 8], *Bishoff* [5], *Xantus* [5], *Forrer*), Guanajuato, Guadalaxara (*Dugès* [3]).

This remarkable species has a very limited range in Western Mexico, where it was discovered during Captain Beechey's voyage at San Blas, and where Grayson and others found it at Mazatlan. Dr. Dugès includes it in his 'List of Birds of Guadalajara;' this is the only record we have of it inland away from the coast of the Pacific. The great variation of the markings of the head and throat of this species has given rise to a good deal of perplexity as to whether these variations are due to immaturity or to sexual differences; judging from a pair sent us by Mr. Forrer, which have the sex of

each carefully marked, and which show no sign of immaturity, the female has the frontal and crest-feathers tipped with white and those of the male with blue. As in the other species of *Calocitta* there certainly seems to be a sexual difference in the markings of the head, we are inclined to think that the sexes can be distinguished by their markings in this species; on the other hand is Grayson's positive statement that they are alike, so that further observations are desirable to clear up this point.

Grayson says that after the month of September the Urracas (*C. colliei*), in families of seven or eight, will almost invariably be found with the small flocks of Double-crested Orioles (*Cassiculus melanicterus*), with whom they continue all the winter till the breeding-season arrives. They follow the Orioles through all their peregrinations in the woods, in order to share a part of the various beetles, grasshoppers, and other insects and their larvæ, which the more active Orioles are better fitted to uncover from their hiding-places in the bark and leaves of trees. They thus pass the time hunting amicably together, the Orioles seeming to be satisfied with their society, and at the same time the ever vigilant Urracas, being on the alert, give timely warning of danger.

The Urraca Jay builds its nest in May; it is composed of rough thorny sticks, and lined with moss or fibres of roots and grass; it is about as large as that of the Magpie, and, like that bird, a great deal of caution is observed in locating it in some inaccessible thorny tree.

It is an inhabitant of Western Mexico, generally met with in the thick and virgin forests of the *tierra caliente*, near the Pacific coast.

2. Calocitta formosa.

Pica formosa, Sw. Phil. Mag. new ser. i. p. 437 [1].

Calocitta formosa, Scl. & Salv. Ibis, 1859, p. 22 [2]; Scl. P. Z. S. 1859, p. 381 [3]; Salv. Ibis, 1870, p. 114 [4]; P. Z. S. 1883, p. 423 [5]; Lawr. Mem. Bost. Soc. N. H. ii. p. 285 [6]; Bull. U. S. Nat. Mus. no. 4, p. 24 [7]; Sharpe, Cat. B. Brit. Mus. iii. p. 88 [8]; Nutt. & Ridgw. Pr. U. S. Nat. Mus. vi. p. 392 [9]; Perez, Pr. U. S. Nat. Mus. 1886, p. 153 [10].

Pica bullocki, Wagl. Syst. Av. fol. 21, p. 6 [11].

Cyanurus bullocki, Bp. P. Z. S. 1837, p. 115 [12]; Consp. Av. i. p. 380 [13].

Calocitta bullocki, Scl. P. Z. S. 1858, p. 358 [14].

Garrula gubernatrix, Temm. Pl. Col. p. 436 (Jan. 1828) [15].

Cyanurus gubernatrix, Taylor, Ibis, 1860, p. 113 [16].

Cæruleo-grisea; pileo postico et nucha azureis; alis extus azureo-limbatis; loris, capitis lateribus et gutture albis undique nigro marginatis; crista elongata nigra, plumarum longissimarum dimidio basali griseo; corpore subtus albo; cauda supra cyanea subtus nigra, rectricibus utrinque quatuor albo late terminatis; rostro et pedibus nigris. Long. tota 24·0, alæ 7·4, caudæ rectr. med. 13·0, rectr. lat. 5·0, rostri a rictu 1·6, tarsi 1·7. (Descr. maris ex Oaxaca, Mexico. Mus. Brit.)

♀ mari similis, sed cristæ plumis elongatis omnino nigris, nucha nigra, pileo postico tantum cæruleo lavato.

Hab. Mexico [11 13], Temiscaltepec (*Bullock* [1]), Manzanilla Bay, Rio de Ameria (*Xantus* [6]),

Acapulco (*A. H. Markham* [5]), San Juan del Rio (*Rébouch* [8]), Chietla State of Puebla (*Perez* [10]), Oaxaca (*Boucard* [3]), Juchitan, Tehuantepec city (*Sumichrast* [7]); GUATEMALA (*Velasquez* [12]), hot districts of both sides of the cordillera [2], Savana Grande, Escuintla, Retalhuleu, Rio Motagua below Chol, Chuacus, Zacapa (*O. S. & F. D. G.*); HONDURAS, Tigre I., Comayagua (*Taylor* [16]); NICARAGUA (*Sallé* [8]), Omotepé I. (*Nutting* [9]); COSTA RICA (*Carmiol* [4]).

Swainson founded his description of this species on specimens obtained by Bullock at Temiscaltepec, and Wagler's types of his *Pica bullocki* came from the same source, the two names appearing nearly at the same date. Temminck's name (*G. gubernatrix*) is obviously a synonym of the same bird. The range of this species is somewhat limited in Mexico, being chiefly restricted to the hot region of the Pacific side of the cordillera from the State of Colima southwards to the Isthmus of Tehuantepec; it also occurs in the State of Puebla, but the name is absent from Sumichrast's list of the birds of Vera Cruz. This writer states that it is one of the most widely-distributed of the birds of Tehuantepec, where it makes its presence known in the obtrusive and noisy way so common to all Jays, and especially to members of this genus.

As in Mexico, so in Guatemala, this Jay is only found in the hotter parts, occurring in greatest abundance in the forest-country bordering on the Pacific, up to an elevation of about 2500 feet. To travellers in these districts it is exceedingly familiar, as it often keeps pace with them, crossing and recrossing the road in flocks, all the time keeping up discordant cries; it will thus follow a party sometimes for a mile or more, and then, as if satisfied with this performance, abruptly disappear. The only other portion of Guatemala in which we noticed this bird was the valley of the Motagua river, where it occurs from the bridge which crosses the river between Vuelta Grande and Chol and the vicinity of Gualan below the plain of Zacapa; it occurs also in the valleys opening into the Motagua, such as that in which the village of Chuacus is situated. All this country is occupied by thin scrubby forest, largely composed of Mimosæ, and it is woods of this description rather than denser forests that this bird frequents. It is not found about Salama or any other portion of the Department of Vera Paz, nor does it occur in Yucatan. In Honduras Mr. Taylor says it is plentiful in Tigre Island in the Gulf of Fonseca and thence inland to the foot of the mountains north of the plain of Comayagua. From Costa Rica we have a single male specimen sent us by Carmiol, without the precise locality being indicated.

Mexican specimens appear to be rather greyer as a rule in the tint of their upper plumage than those from further south, which are of a bluer shade; the latter, too, often have a blue tint on the throat. These differences are but slight and somewhat inconstant.

[*Note.*—Dr. Dugès, in his list of Guanajuato birds published in the first volume of 'La Naturaleza,' includes two other species of Corvidæ as found in the neighbourhood of the town in which he resides; but we have not put them formally into our list, as their occurrence so far south in Mexico is perhaps only casual, and no other writer makes any mention of them. These species are:—

1. Corvus americanus, Aud., Dugès, La Nat. i. p. 139; Baird, Brew., and Ridgw., N. Am. B. ii. p. 243.

A species of wide range in North America from the fur countries southward, and also found in the frontier State of Texas. Dr. Dugès gives it from Guadalajara and Guanajuato; possibly the bird referred to is *C. mexicanus*.

2. Pica hudsonica, Bp., Dugès, La Nat. i. p. 139.

Pica caudata, var. *hudsonica*, Baird, Brew., and Ridgw. N. Am. B. ii. p. 266.

This species, which is now considered by many writers to be inseparable from the European *Pica rustica*, is found throughout the northern and western parts of North America and in the Rocky Mountains to New Mexico and Arizona. Dr. Dugès records its occurrence from Guanajuato.]

Fam. ALAUDIDÆ.

OTOCORYS.

Otocoris, Bonaparte, Icon. Faun. Ital. Ucc. Intr. fol. **** (1839).
Otocorys, Dresser, B. Eur. iv. p. 385.
Eremophila, Boie, Isis, 1828, p. 322; Baird, Brew., & Ridgw. N. Am. B. ii. p. 139.

Otocorys is the only genus of the Alaudidæ found permanently in America, where it occurs over the greater part of the northern continent from the shores of the Arctic Ocean to the plateau of Mexico, and in South America there is an outlying colony in the Andes of Colombia. The genus has also a wide range in the Old World, where it is represented by several closely allied forms, the limits of some of which are not clearly defined. The same is the case in America, where several races have been distinguished, our Mexican bird being one of them.

The bill of *O. chrysolæma* has no trace of a notch at the end of the maxilla, the tomia is very slightly curved; the nostrils are completely covered by stiff feathers, with which are mingled some strong decurved bristles. The toes are rather short, and the claw of the hind toe strong and nearly straight. The wings are long and pointed, the three outer primaries forming the point, the second being slightly the longest; the inner secondaries slightly exceed the inner primaries. The tail is moderate, and nearly even at the extremity.

1. Otocorys chrysolæma.

Alauda chrysolæma, Wagl. Isis, 1831, p. 530[1].
Otocorys chrysolæma, Scl. P. Z. S. 1856, p. 306[2]; 1859, p. 372[3].
Otocoris chrgsolæma, Finsch, Abh. nat. Ver. zu Bremen, 1870, p. 341[4].
Eremophila chrysolæma, Scl. P. Z. S. 1864, p. 174[5].
Eremophila alpestris, var. *chrysolæma*, Baird, Brew., & Ridgw. N. Am. B. ii. p. 144[6].
Otocoris alpestris, var. *chrysolæma*, Lawr. Mem. Bost. Soc. N. H. ii. p. 278[7]; Bull. U. S. Nat. Mus. no. 4, p. 22[8].
Otocoris alpestris chrysolæma, Hensh. Auk, i. p. 260[9].
Alauda cornuta, Sw. Phil. Mag. new ser. i. p. 434[10].
Phileremos cornutus, Bp. P. Z. S. 1837, p. 111[11].
Eremophila cornuta, Dugès, La Nat. i. p. 140[12].
Alauda gracilis, Licht. Preis-Verz. mex. Vög. no. 59, p. 2; J. f. Orn. 1863, p. 56[13].

Supra sordide fusca, plumis singulis medialiter obscurioribus; vertice postico, nucha et cervice postica cum uropygio stricte rosaceo-cinnamomeis; vertice antico, loris, genis et pectore nigerrimis; fronte, superciliis, regione parotica et gula flavis; corpore reliquo subtus albo; alis fuscis, pallide fusco limbatis, tectricibus minoribus rosaceo-cinnamomeis; cauda nigricante, rectricibus utrinque externis in pogonio externo albidis, rectricibus duabus intermediis fuscescentibus; rostro nigro, mandibula infra ad basin albicante; pedibus obscure corylinis. Long. tota 6·0, alæ 4·0, caudæ 2·8, rostri a rictu 0·6, tarsi 0·7. (Descr. exempl. ex Mexico. Mus. nostr.)

Av. juv. capite nec nigro nec flavo ornato, vertice omnino fusco striato.

Hab. North America, New Mexico, Arizona?[9].—Mexico[1 10 11] (*Deppe*[13], *Sallé*[2]), Mazatlan (*Grayson*[4 7]), Guanajuato (*Dugès*[12]), Tonila[6], valley of Mexico (*White*[5]) Tacubaya (*le Strange*), Oaxaca (*Boucard*[3]), San Mateo (*Sumichrast*[8]).

The North-American Shore-Lark (*Otocorys alpestris*) has recently[9] been carefully examined by Mr. W. H. Henshaw, and divided into no less than nine races or subspecies, of which the Mexican bird is one, and this he calls *Otocorys alpestris chrysolæma*, with the following definition:—"Length of wing 3·98, tail 2·91, bill 0·83, tarsus 0·46. Much deeper in colour than *arenicolor* (*i. e.* the bird of the Great Basin of the United States and Rocky Mountains). Nape &c. deep pinkish rufous; throat deep yellow, but breast always white.—Habitat: Mexico, possibly across the border into Southern Arizona and New Mexico."

Without attempting to examine the whole question of the variation of these birds, for which we have not nearly sufficient materials, we can hardly be wrong in using Wagler's name *chrysolæma* for the Mexican bird. Whether it is really definitely separable from those found on the frontier States must remain an open question so far as we are concerned; but we may remark that the small size, as compared with Northern birds, the bright yellow of the throat, and the clear pinkish colour of the nape and hind neck, seem to distinguish the race of the Mexican highlands.

Otocorys peregrina of the highlands of Colombia, though separated by Mr. Sclater, has often been considered to be identical with *O. chrysolæma*, but we think we can trace sufficient differences to justify its being kept separate. Comparing adult males,

the hind part of the occiput, the nape, and back of the Colombian bird seem more definitely streaked with dark brown, the throat is whiter, and the primary-coverts more rufescent than in the Mexican bird. These slight characters assume more importance seeing that the two birds are separated geographically by many hundreds of miles, and no trace of an *Otocorys* is known to occur anywhere in the intermediate country.

O. chrysolæma seems to be generally distributed over the greater portion of Central Mexico, being doubtless confined to the open country of the plateau. Grayson found it near Mazatlan, which is the only point on the coast of the Pacific where it has been noticed. It occurs also in the State of Oaxaca and at San Mateo, on the Isthmus of Tehuantepec, where Sumichrast says[8] that it is probably resident on the plains bordering the Pacific Ocean, being abundant in July and August. This is the most southern limit of its range, for we have no record of its occurrence in Guatemala.

END OF VOL I.

21 I 407 (4)

SMITHSONIAN INSTITUTION LIBRARIES
3 9088 00710 0696